DEPARTMENT OF ENERGY

Energy efficiency in low income households: an evaluation of local insulation projects

by

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Chapter 1 Introduction: Energy efficiency policy, low income households and the growth of the voluntary sector initiative

1.1 This book presents the results of an evaluation of local energy conservation projects in the United Kingdom. The research included a survey of local energy conservation projects known to Neighbourhood Energy Action in September 1982 and a survey of client households who were helped to insulate their homes by five of the projects and a comparison group of non-clients.

1.2 About 28% of energy consumption in the UK occurs in housing.[1] Since the energy crisis of 1973/74 government policy has sought to promote energy efficiency in the domestic sector by pursuing four policies.

1.3 (a) *Price*: the cornerstone of the present government's policy is to price fuel at 'realistic', long-run marginal cost levels because economic pricing, it is argued, encourages consumers to use energy efficiently and makes energy saving investments more attractive. This policy entailed electricity prices rising 5% above the increase in the industry's costs and gas prices rising by 10% above the rate of inflation during the period 1980–82.

1.4 (b) *Publicity*: the campaigns of exhortation and advice in the national and local media and, for example, the recent Energy Saver Shows, attempt to change attitudes and behaviour by urging consumers to save energy, informing them about ways of using energy more efficiently and of the benefits they will derive from doing so.

1.5 (c) *Incentives*: households are encouraged to insulate their lofts and hot water tanks with the help of home insulation grants administered by local authorities on behalf of the Department of the Environment. Householders in dwellings with less than 25 mm of loft insulation qualify for a 66% grant up to a maximum of £69 to increase the insulation to 100 mm. For pensioners a 90% grant up to a maximum £95 is available. Local authorities are empowered to improve insulation standards in their own housing stock by the home improvement programme. The DHSS makes a contribution to conservation policy by paying single payments to claimants of supplementary benefit for hot water tank jackets and draughtstripping materials.

1.6 (d) *Regulation*: regulation has been used most extensively in setting standards for conservation in new buildings. Mandatory standards for the insulation of roofs and walls have been improved.

1.7 In aggregate these four strategies have had an impact. By December 1983, 83% of homes whose lofts could be insulated had been, 28% had some double glazing, 90% of hot water tanks had been lagged and 14% of homes with cavity walls had been insulated.[2] But the potential for energy saving in the domestic sector is still very large. The Building Research Establishment estimate that approximately 55% of the ultimate potential for conventional energy efficiency in domestic buildings has still to be achieved.[3] However these policies have been pursued at the expense of increasing social disparities. As a result of the priority given to pricing policy, fuel poverty is now likely to be more prevalent. The incentives given for insulation investments have been taken up by the better-off but less by tenants and disadvantaged consumer groups.

1.8 For example, while 90% of social class A/B households have their loft spaces insulated, only 74% of social class D/E do.[4] Similar discrepancies exist by tenure and household type. In the 1981 English House Conditions Survey, it was found that a mere 36% of private tenants and only 62% of single pensioners had loft insulation compared with 73% overall.[5]

1.9 The poor and the elderly on average spend a larger proportion of their budget on fuel,[6] and are more likely to live in old or low standard homes with inefficient and costly heating systems. They thus have the greatest need to use energy efficiently, for reasons of both economy and comfort. Moreover, price increases hit their budgets hardest; with limited resources they are less likely to be able to respond to price signals or exhortation; and even the homes insulation programme which provides capital grants requires them to find the balance between the grant allowed and the total cost of insulation. Many of the poorest consumers live in the private rented sector where they have no responsibility and limited incentive for insulating lofts.

1.10 The English House Conditions Survey found that of the single pensioners without loft insulation, 21% had not insulated because they were not responsible, 8% because it was not worth it, 15% because they could not afford it and 27% because they had never thought about it. In addition, 41% did not know about loft insulation grants.[7]

1.11 Recognising that disadvantaged consumers were suffering from present national energy efficiency policies the government has supported the development of voluntary sector projects operating under the aegis of Neighbourhood Energy Action.

Neighbourhood Energy Action (NEA)

1.12 NEA is a National Council of Voluntary Organisations (NCVO) service. It assists local communities to run projects which help to conserve energy in low income households and at the same time create jobs. Local NEA projects encourage efficient use of energy through loft insulation, draught proofing, simple double glazing and advice. NEA is co-ordinated from the NEA information centre in Newcastle-upon-Tyne.

1.13 The first voluntary sector project 'Insulate a Pensioner' was established by Friends of the Earth (FOE) in Durham in 1974, with financial assistance from Age Concern. Initially using volunteers and then employing regular workers under the Job Creation Programme, this provided a low-cost or no-cost insulation service to pensioners and the disabled living in the Durham area. In addition to their insulation work, FOE Durham also produced a home insulation pack describing how other groups could set up, run and maintain a local insulation project, and in 1977 set up an Energy Advice Service to provide information to other voluntary organisations and local advice agencies.

1.14 The Durham initiative and a similar project in Birmingham, were to provide a stimulus for further projects. In demonstrating that it was possible to provide an insulation service, organised at the local level, to those consumer groups who had fallen through the net of national programmes, these projects generated considerable interest. The Department of Energy encouraged local authorities to use the Job Creation Programme to set up insulation projects for the public sector and a number of voluntary organisations set up similar projects for disadvantaged householders in the private rented and owner occupied sectors.

1.15 Following the run-down of the Durham initiative, the city of Newcastle-upon-Tyne became the focal point for the development of local energy projects, when the city council backed the establishment of an Energy Advice Unit and an insulation project. The number of projects increased rapidly when in 1981 the NCVO set up Neighbourhood Energy Action (NEA) specifically to provide support, advice, information and training for existing projects and to stimulate the creation of new projects. The Department of Energy provided financial support for NEA by contributing to its running costs and by making available seedcorn grants to help with the planning and promotion costs (£500 maximum) of intended projects and a project grant (£5,000 maximum) to cover the initial expenditure required to establish a project, for example, buying a second-hand van, equipment, tools, clothing and stocks of materials.

1.16 As well as the Department of Energy grants to help projects establish themselves, the NEA projects draw money from a variety of sources: from DHSS, when households are eligible for single payments; from the Department of the Environment homes insulation programme to pay for materials; and from the Manpower Services Commission (MSC) to employ supervisory and other staff under the auspices of the Community Programme. Some projects are funded by local authorities sometimes using Urban Aid or Inner City Partnership money and some benefit from charities, trusts and local businesses.

1.17 The potential contribution of these projects to national policy for the efficient use of energy is not the only reason for studying them. Local energy conservation projects may also be important in contributing to three other policy goals. They are:

1.18 (a) *Job creation*: they have the potential to provide work of value to the community which would not be done otherwise, both for unskilled, unemployed people, installing insulation materials at he local level and also in the insulation industry at a national level.

1.19 (b) *Relief of fuel poverty*: it is now widely recognised that attempts to relieve fuel poverty via social security payments and/or adjustments to prices only is both wasteful and ineffective (although necessary) until poor consumers live in dwellings that are well insulated and have efficient heating systems.[8] Improving the insulation level of low income households makes an important contribution to the relief of problems caused by high energy prices, for example, debt, discomfort, distress and even, in a few cases, death from hypothermia.

1.20 (c) *Improving the housing stock*: the target population for local conservation projects — the poor and the elderly — tend to live in the most dilapidated housing. The projects therefore may contribute to the improvement of this housing stock.

Outline of report

1.21 In chapter 2 we briefly describe the methods used in this evaluation. In chapter 3 we analyse the institutional context and summarise the results of the postal survey of projects registered with NEA. Chapter 4 is based on the survey of clients of NEA and matched non-client pensioners and describes the basic characteristics of the sample, their heating arrangements and fuel expenditure. Chapter 5 explores the level of insulation of the clients and comparison group before the intervention of NEA. Chapter 6 explains how and why the clients made contact with the projects and chapter 7 analyses what work the projects did, how much it cost and who paid. Chapter 8 assesses the impact of this work on comfort and energy consumption and chapter 9 concludes the study.

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Chapter 2 Methods of investigation

2.1 The overall design of this evaluation is in three stages: first, a postal survey of all projects known to NEA carried out in September 1982; then an in-depth study of five projects and finally, in April 1983, a social survey of the clients and a comparison group of non-clients of these five projects.

Postal Survey

2.2 A standardised postal questionnaire was piloted in September 1982 and mailed in October to 138 local energy conservation projects either registered with NEA or otherwise known to have been interested in developing a project. The questionnaire covered the aims and origins of the projects, contact with NEA, use of seedcorn funding from the Department of Energy, deployment and funding of manpower, overall financial support, publicity, services offered to clients and characteristics of clients.

2.3 The final response rate from the postal questionnaire was 85%. Exclusion of duplicated or inappropriate addresses yielded 91 completed questionnaires or explanatory letters available for analysis. Approximately 75% were recontacted by telephone to fill omissions or clarify points of interest. The projects were extremely helpful and interested and the response was considered most satisfactory.

Case studies

2.4 While the analysis of the postal survey was being undertaken, a smaller sample of five insulation projects was chosen both for an in-depth case study and in order to conduct a consumer survey among their clients. Visits to these projects were made in April 1983 and key personnel were interviewed. A descriptive appraisal of each of these projects was prepared. Further research was also carried out in January 1983 when a member of the research team visited Belfast to study the six projects in Northern Ireland.

2.5 The selection of the sample of five projects is described below. It is linked with the selection of the sampling base for the client survey. A sample size of 300 clients was established as being large enough to give reliable estimates of population characteristics within a reasonable cost.

2.6 The postal survey established that there were twenty-eight projects which might form a basis for selection of the sample; the choice was either to select approximately ten clients from each project to make up the 300 or to sample 50 or 60 clients from five or six projects. Since the variation between projects is great and had been thoroughly studied in the postal survey and the main interest at the client survey was variation between clients, it was decided that the best strategy would be to sample a relatively large number of clients from a few projects. Five projects were eventually selected after consideration of the variety of clients served, their geographical distribution, the type of sponsor, the range and amount of work undertaken and source of funding. An urban/rural contrast was also sought. The final choice of the five projects was quite difficult because there were few from which a sample of 60 clients could be drawn, and some of these were thinking of closing before the fieldwork would take place. The projects selected were:

1. a long established Friends of the Earth sponsored project in the Midlands (called MIDLAND in this report)
2. the largest project in terms of workforce and jobs accomplished (NORTHERN)
3. a rural post-NEA project outside Edinburgh (LOTHIAN)
4. a NACRO-sponsored project covering a wide area of Cleveland (TEES)
5. a recently started project in South-West London (BOROUGH).

All these projects reported in the postal survey that they had done draught proofing and loft instulation work except BOROUGH which only did draught proofing. BOROUGH was chosen because it did not restrict its clients to pensioners only and provided a sample of a London project.

2.7 These projects were also used for the case studies which provide greater detail about the operating of projects than had been obtained through the postal survey and also give background information on variability between the projects needed in interpreting the results of the client survey.

Social survey of clients

(i) Design

2.8 The client survey sought information about the characteristics of the clients, their fuel use and heating arrangements, level of insulation, the work done by the NEA project and what effect it had. The five projects made their records of work done available for the selection of the sample of clients for interview. Eighty addresses were chosen from each project in order to achieve a sample of 60 interviews from each.

2.9 Supplementary funding from the National Gas Consumers' Council and the Electricity Consumers' Council made it possible to include a substantial comparison sample in the survey. For any programme evaluation, a comparison group is important in order to be clear about what has been achieved by the programme which would not have happened anyway. In the case of NEA, the questions it answers are whether the projects were reaching different households from those reached by centrally administered conservation schemes and whether the insulation work done resulted in changes in comfort and consumption of fuel. A comparison sample of 200 was sought and the intention was to match on age of the head of the household, tenure and type and size of dwelling.

2.10 Most projects do the bulk of their insulation work during the heating season and clients would be particularly aware of problems with heating their homes at that time. The fieldwork was therefore timed for the end of the 1982/3 heating season. Clients were not interviewed earlier than six weeks after the work has been done, to allow a reasonable time for them to assess its impact. Thus the time period was set to sample from households having had work done between September 1982 and the end of February 1983.

(ii) Sampling

2.11 The sampling frame for the selection of clients was the record of work done, during the chosen period, kept by each project. This seemed satisfactory as the pilot study showed no particular order in which the work had been done and the records were a complete listing of the work done.

2.12 On the basis of the postal survey it was anticipated that a random sample of the work done by each project would yield a reasonable number of homes which had had loft insulation work. However, during visits by the research staff to the projects to select the sample in March 1983, the balance between loft insulation and draught proofing was found to have changed, mainly because one project had found that draughtstripping local authority properties was the most efficient way to keep up a flow of work. Thus, to achieve a sufficient number of homes with loft insulation, half the sample (150 households) was selected from those with loft insulation. The period of sampling had to be extended from the planned six months to one year prior to the fieldwork. It was found that BOROUGH had only worked in 60 clients homes instead of the 80 originally planned. The sample from NORTHERN and LOTHIAN was boosted to 90 addresses to compensate.

2.13 The characteristics of the sample eventually chosen are given in Table 2.1.

2.14 Comparison interviews were found by a random route method, whereby the interviewer sought a matching household after missing a set number of households adjacent to the client and asking at subsequent households at intervals. After the pilot study this method was retained but made easier and quicker by:

(a) only matching for pensioner households. For both client and comparison samples a pensioner household is one in which the head of the household is of pensionable age (and retired from full-time work) i.e. if male, aged 65 or over; if female, aged 60 or over.

(b) allowing interviewers to call more frequently and ask about addresses on either side. The final procedure was that the interviewer should leave the pensioner client address, turn left, call at the fifth door and attempt an interview. If not eligible the interviewer could ask if there was a pensioner household at the sixth or seventh address and thereafter call at every third address and ask about two addresses on either side.

(iii) Fieldwork

2.15 After the sample of clients had been chosen a letter was sent by the project to each household asking if they would be willing to be interviewed. If no refusal had been received within a fortnight the names and addresses were passed to the fieldwork agency Social and Community Planning Research who had made their own arrangements for interviewing. Interviews started on 13 April 1983 and most of them took place in the three weeks following this date although some interviews, particularly for the comparison sample, took longer to achieve.

2.16 Response rates for the client sample vary around an average of 82% of addresses issued to interviewers, with LOTHIAN having the highest at 90% and MIDLAND the lowest at 72%. Refusal was the main reason for the lower response in MIDLAND and most of these occurred before addresses were issued to interviewers.

2.17 Interviews were achieved to match 92% of the pensioner client sample but of all the eligible pensioner households contacted to achieve the comparison interview only 67% responded. MIDLANDS was again the area with the lowest response rate.

2.18 Supplementary to the interviews, temperature readings were obtained both from the room in which the interview took place and from outside the home. Information on the consumption of fuel for the eighteen month period prior to the interview was collected from the gas and electricity boards with the permission of the clients. In addition, information on the work done and its cost was extracted from the records of each local project, again with the permission of the client.

Table 2.1: Sample of project clients

	Target sample			Time period	Actual sample of addresses			Drawn from a total number of		
	L*	D*	Total	End of Feb. 1983 back to:	L	D	Total	L	D	Total
MIDLAND	40	40	80	September 1982	50	40	90	120	175	295
TEES	40	40	80	March 1982	30	50	80	57	279	336
LOTHIAN	40	40	80	March 1982	62	18	80	179	22	201
BOROUGH	40	40	80	September 1982	0	60	60	0	60	60
NORTHERN	40	40	80	March 1982	30	60	90	76	1,817	1,893
TOTAL	200	200	400		272	228	400	432	2,178	2,610

*L = of those having loft insulation work;
*D = of those having draught proofing work only.

Table 2.2: Final sample of achieved interviews

	Northern		Tees		Lothian		Midlands		Borough		
	L.	D.	L.	D.	L.	D.	L.	D.	L.	D.	Total
Questionnaires to be analysed	27	42	26	35	51	15	40	25	0	49	310
Drawn from	76	1817	57	279	179	22	120	175	0	60	2,785
Sampling fraction	0.36	0.02	0.46	0.13	0.28	0.68	0.33	0.14	—	0.82	
Relative weighting factor	0.31	4.82	0.24	0.89	0.39	0.16	0.33	0.78	—	0.14	

(iv) Final sample and weighting

2.19 A final sample of 310 client interviews and 167 comparison interviews was achieved. For reasons already discussed, some of the projects were oversampled for clients who had had loft insulation done. To compensate for this, when results for all clients are presented, responses have been weighted so that they have the same influence on the overall results as they would have had a random sample been taken. The weighting factors are given in the last part of Table 2.2.

Conclusions

2.20 The postal survey of all the local energy conservation projects registered with NEA in September 1982 had a response rate of 85%, a total of 91 completed questionnaires or explanatory letters for analysis. From these were selected five projects to provide the sample for the survey of clients helped by the projects. These five projects were studied in depth. Half of the clients surveyed had had loft insulation work done and half draught proofing only. Interviews were obtained with 82% of the client sample giving a total of 310 cases. Comparison interviews were obtained from 167 pensioner households matched with 167 pensioner households in the sample of clients of NEA.

Chapter 3 Local energy conservation projects: background, institutional arrangements and problems

Introduction

3.1 This chapter reports on the postal survey and five detailed case studies of projects. We also consider the wider institutional context in which the projects have developed, their links with government departments and other agencies and the organisation, goals and mode of operation of the projects themselves.

3.2 It should be noted that this analysis gives a picture of project operation as at 30 September 1982. Since that time the situation has changed in many respects. There are now more projects operating, and the Community Programme has become established. There are different regulations concerning insulation grants and the Department of Energy together with NEA have acted upon some of our preliminary recommendations. We are confident however that the general conclusions are valid and that they point to strengths and weaknesses in the programme which have implications for policy.

Geographical Distribution of Schemes

3.3 In 1982 there was by no means a national network of local energy conservation schemes. East Anglia and Wales had no established insulation project or advice unit and the North West and East Midlands regions had very few. A quarter of the insulation projects were concentrated in the London area and 18% in Edinburgh and surrounding area. However there were projects in planning stages in all standard regions and by the autumn of 1984, 93 projects had developed providing a wider network.

Classification of the Projects

3.4 In 1982 there were three types of local energy conservation projects under the umbrella of NEA according to the criteria of services offered and the stage of development at the time of the survey.

(a) *Projects in the planning stage:* these projects described themselves as being in a preliminary or planning stage of organisation and as such had completed no practical insulation work for clients. Fifty-seven projects fell into this category.

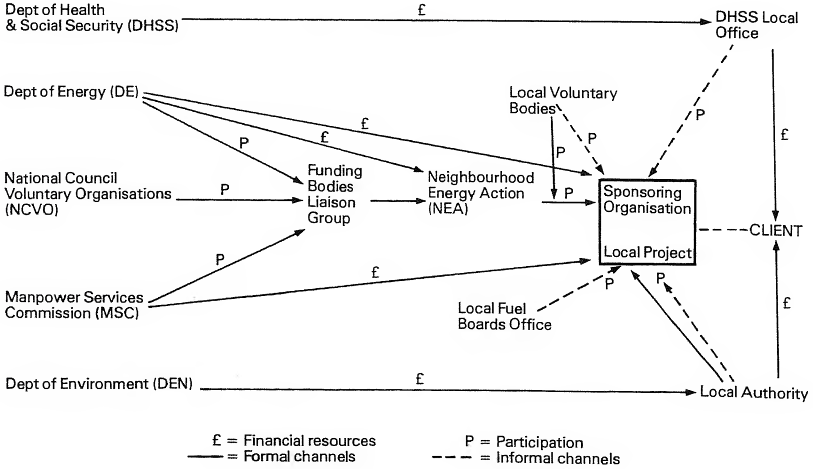
(b) *Energy Advice Units:* these projects were delivering a service to clients of advice and information about energy use and conservation and welfare benefits advice. They were organised on a formal basis, with premises for the public to visit and permanent staff. There were five such projects, one of which had four sub-offices.

(c) *Insulation Projects:* these projects were undertaking insulation work in clients' homes and some also offered advice and information on energy and welfare issues. In total, 28 projects fell into this category.

The Institutional Context of the Local Energy Projects Programme

3.5 A variety of agencies, national and local, statutory and non-statutory, may be involved in local projects either directly or indirectly, formally or informally and in terms of financial support

Figure 3.1 A general model of the agencies involved in Local Energy Projects Programme


Dept of Health & Social Security (DHSS)
£
DHSS Local Office
Dept of Energy (DE)
£
£
P
Local Voluntary Bodies
P
P
P
£
National Council Voluntary Organisations (NCVO)
P
Funding Bodies Liaison Group
Neighbourhood Energy Action (NEA)
P
Sponsoring Organisation
Local Project
CLIENT
P
£
Manpower Services Commission (MSC)
P
P
Local Fuel Boards Office
£
Dept of Environment (DEN)
£
Local Authority
£ = Financial resources
—— = Formal channels
P = Participation
– – – = Informal channels

and/or other resources. In figure 3.1, a general model of the agencies involved and their particular roles is presented.

3.6 There is no agency on which all projects are formally dependent in terms of definition of goals, finance or accountability. A quasi-legitimating agency is the Energy Efficiency Office of the Department of Energy which reports on their progress in Parliament, provides part financial support for central NEA and grants to help local projects in their initial stages.

3.7 The Energy Efficiency Office is represented on the NEA Funding Bodies Liaison Group. Other members of this committee include the Manpower Services Commission, which provides staff for most projects through the Community Programme and the National Council for Voluntary Organisations, the charity which from the outset has sponsored the central NEA in its support of local projects.[1] This Committee oversees the development of the NEA programme.

3.8 Although the projects could not function without grants to clients for insulation materials from the Department of Environment and the Department of Health and Social Security, these two Departments whose support is essential but indirect, are not represented on the Liaison Group. At the local level, projects may have direct contact with the Energy Efficiency Office and the Manpower Services Commission and are encouraged to use the support services of NEA. NEA's role is entirely advisory and it has no authority over the projects. Informal contacts may also be established with local offices of the Department of Health and Social Security, the fuel boards, local authorities who administer the home insulation grants scheme and other voluntary bodies.

3.9 The extent to which these local bodies participate in and the type of contact they have with projects varies. In the minimal case the local authorities and DHSS offices pay grants to the clients for insulation materials fitted by the project but have no dealings with the project itself. In other situations, a local agreement is reached, normally initiated by the project, whereby the grants are paid directly to it and the two statutory bodies along with the fuel boards may help with project promotion and client referrals. In some instances local authorities take a much more active role in initiating part or complete funding of a project and provide a variety of other forms of assistance, for example premises, management advice and staff training. The extent of local voluntary groups' participation is also variable. In some cases they take an active role in project management while in others they have no formal involvement and may or may not take part in project promotion and client referrals.

3.10 Such a variety of arrangements is perhaps typical of the flexibility and opportunism of the voluntary sector but as will be discussed later, they carry with them certain costs to the programme as a whole.

3.11 There is imbalance and potential tension both within local projects and between the various participating agencies with respect to the primary objectives of the programme. The provision of energy conservation services for low income households is the main objective of the programme and job creation a product of this.

3.12 The balance of funding by the Department of Energy (DEn) and the MSC of local projects is the reverse of this — the majority being provided by the job-creating MSC and much less by the DEn. If improving the thermal comfort of disadvantaged consumers is the overall objective then both of those bodies are less directly involved than the DHSS which has only informal links with the local projects, although providing basic funding through single payments. The role of the Department of the Environment in providing Home Insulation Grants is peripheral to all those objectives except that improving the housing stock through increased insulation does have an effect on comfort. Thus as an instrument, NEA is not ideally designed to promote the aims of any one government department; it tends to operate in the gaps between departments, some projects emphasising one objective and some another. The effect of this is evidenced in the priority which many projects now in the development stage give to job creation above energy related work.

Projects' objectives and commitment to Energy Conservation

3.13 A wide range of statutory and voluntary organisations have been involved in establishing local energy conservation projects. These include community councils, councils for voluntary service, local authorities, housing associations, Friends of the Earth, organisations specifically assisting the elderly, or helping ex-offenders and unemployment action centres.

3.14 In many cases the interests of the sponsoring organisation determine where a particular project's priorities lie. Given the varied interests of the sponsoring agencies, there is a wide range of motivating aims and objectives of the projects themselves. Projects were asked to rank their original main objective in setting up an energy conservation service. In order of priority, these were to create jobs, to keep the elderly warm, to conserve energy/promote energy conservation, to relieve fuel poverty and to stimulate community participation. It appears that a 'shift' in main objectives may have taken place with the stage of development of projects. Currently established insulation projects report their primary objective to be keeping the elderly warm, followed by job creation. In contrast, schemes setting up now are more strongly committed to job creation and then interested in energy conservation. Thus, by no means all local energy projects have an explicit commitment to energy conservation and an increasing number are involved in other job creating activities, for example, gardening, general environmental work and furniture repairs.

3.15 There is a danger in this change of emphasis for an energy conservation programme in the longer term, an overriding commitment to job creation is likely to be a weakness. If the running of an insulation scheme becomes too difficult, schemes may well change their activities to a variety of other useful pursuits acceptable to the sponsoring organisation. As will be described, conservation projects are in many ways demanding to run successfully and it is likely that some projects may be tempted to make the relatively simple shift towards less difficult activities while maintaining their commitment to job creation.

Funding and Management

3.16 Although the NEA scheme is described as a 'voluntary sector initiative', the majority of projects rely almost exclusively on public funds for their activities. However, the postal survey showed that many schemes had experienced difficulties and delays in obtaining funds and that even with the typical funding package, a project is in almost every respect under-funded. The grants offered by the Department of Energy have been helpful in expanding the number of projects but are too small to put a project on a secure footing.

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[1] This reflects the situation at the time the research was conducted. The Manpower Services Commission no longer participates in the liaison group since it no longer funds the central NEA but the Department of the Environment is now involved in so far as it funds a special NEA post for promoting local authority support for projects.

3.17 We found that projects which do not have access to other resources, either in the form of income or grants, or in the provision of management services from local authorities or businesses, are much less likely to be viable. The most successful projects are all underwritten by substantial grants from the Urban Programme, including Inner City Partnership, or local authorities or charities. By 1982 only two projects had become well established using only DEn funds and MSC funding for manpower and both of these depended on provision of rent-free premises by the local authority.

3.18 The under-funding of projects is felt most seriously in their management. Seedcorn grants from the Department of Energy are not adequate to enable sponsors to employ staff to plan projects properly. Under the MSC's arrangements there may be difficulty in recruiting the right quality of management staff and sustain them in employment for long enough periods to provide continuity for the projects.

3.19 The management of a local energy project is a demanding, almost entrepreneurial, task calling for skills in the recruitment, training and motivation of staff, vigorous marketing and promotional activity and planning the activities of the insulation teams. The major task of financial management is made particularly difficult by the variety of sources of grants. The qualities required for these varied tasks have not always been available in some of the projects. There was evidence that management staff have been recruited without the broad range of management skills required or projects have been unable to keep good staff which has led to a hiatus and loss of direction when they have left. For a variety of reasons, many projects have also taken much longer to get going than was envisaged; there were, for example, delays in obtaining funding from the MSC and delays in the Department of Energy in the processing of grants. There were also the problems of inadequate funding, and of inexperience in management.

Mode of Operation

3.20 The active projects were asked to describe the methods used to contact clients. These included giving talks at local clubs, articles and advertisement in local papers, local radio, leafletting, personal canvassing and taking referrals from voluntary and statutory agencies. In their early stage of operation many projects reported difficulties in attracting clients despite spending much time on promotional work. However, as they became established, projects came to rely on local community channels, with the majority of clients contacting them having heard about the service from others.

3.21 Apart from leaflets and posters placed in suitable contact points, few projects had established formal links with local statutory agencies, eg local authorities, the DHSS and the fuel boards. However, if a project can achieve this it strengthens its ability to target eligible clients. One project sent details of its services to all households with fuel debts using DHSS records. Another project estimates that 25 per cent of their referrals come from the local authority department responsible for insulation grants.

3.22 The more extensive the contacts with relevant local bodies, the more effective is the scheme likely to be. But there are institutional barriers to the development of this valuable local level collaboration. In the absence of directives from government, cooperation between local schemes and the statutory agencies and fuel boards is of necessity based on personal contacts and other informal arrangements. Even in favourable circumstances these take time to develop but typically they do not materialise. This may be due on the one hand to the schemes themselves, their recent origin and lack of experience, and on the other to the inertia of local bureaucracy.

The role of NEA in promoting local projects

3.23 The postal survey of projects underlines the importance of an advisory agency in the development of local projects. All 57 projects in the planning stage had made contact with NEA and of these, 46 had not been offering services of any kind prior to this contact. Of the relevant cases, 95% of projects said NEA had been useful in helping them plan and set up their project and 86% of established projects said they had been useful in helping them to develop and expand.

3.24 The projects reported receiving a wide variety of assistance from NEA, including provision of information, general advice and assistance, help with grant applications, provision of training opportunities, advice regarding government policy, publicity material and liaison with other schemes. The majority of projects found NEA to be a valuable service and its role in developing local projects is emphasised by the finding that 33 had first heard about Department of Energy funding from the NEA. For many developing projects, NEA is a catalyst for their interest in energy conservation, their link with central government in respect of funding applications and a consultant on project planning and organisation.

Performance

3.25 In the year ending 30 September 1982 the 28 projects doing insulation work varied both in size (from three to 19 employees) and length of operation. They had carried out insulation work in a total of 7,979 homes. This figure includes draught proofing in 6,281 homes and the insulation of 2,396 lofts. 97% of the clients who had had loft insulation had received a home insulation grant. The single payment for draught proofing (received by 45% of those having draught proofing) reduced the average cost of this service and as a result many clients received this service free of charge. In addition to insulation services, a number of schemes reported that they gave energy advice and services to clients ranging from special leaflets to referral to specialists and verbal advice. There were at this time 234 people who would otherwise have been unemployed (or working on other programmes) working on energy conservation. There are (in July 1985) now 1,900 people funded by the Community Programme working in energy conservation projects.

Conclusions

3.26 A strong commitment in local projects to energy services for disadvantaged consumers will only be maintained if the Department of Energy commits more effort and resources to supporting the programme.

3.27 The existing funding package is not sufficient to meet the needs of local energy projects. The more viable projects have resources in addition to those supplied by the Department of Energy and the MSC.

3.28 A critical weakness of many projects is in the area of management, which should be strengthened by both training courses and the provision of adequate funds to attract and keep people of the necessary calibre in the projects.

3.29 Successful projects have informal links with local authorities, local offices of the DHSS and the Fuel Boards. Some mechanism should be found to place such presently informal contacts on a more formal footing.

Chapter 4 Characteristics of the households helped by Neighbourhood Energy Action

4.1 The analysis in this chapter serves two purposes. First, by analysing the characteristics of the households assisted by NEA it shows which type of households the projects are helping. Secondly, by contrasting the NEA sample with the comparison sample of households we are able to begin to indicate whether there are any differences between those helped by NEA and similar pensioner households in the same neighbourhood. The first part of the chapter deals with the basic characteristics of the households and the second with fuel use, expenditure and comfort levels.

A Basic Characteristics

Housing

4.2 Four aspects of housing are considered: tenure, house type, the age of the house and the level of weekly rent payable. In a sample from the general population it would be expected that about half would be owner occupiers and about a third council tenants. In fact three-quarters of the households serviced by NEA were council tenants and only 15% were owner occupiers. This is partly a reflection of the fact that NEA clients are poorer households but it is also the result of the nature of the work being done by the projects studied. The NEA clients are also living in older and smaller households than one would expect in a normal sample of households in the population.

4.3 Given that the NEA sample of pensioners was only roughly matched with the comparison sample, the similarity in the housing characteristics of the two samples are remarkably close. There is no difference in the distribution of tenure, house type, age of house or in the mean rent between the samples. This indicates that whatever distinguishes the households being helped by NEA from others in the neighbourhood, it is not their housing circumstances. Comparisons of tenure and rent are shown in table 4.1.

Table 4.1 Housing characteristics

		Matched Samples		All
Tenure		Client %	Comparison %	Clients** %
Owned outright		31	31	11
Owned with mortgage		[4]*	[3]	4
Local authority tenant		44	45	75
Housing association tenant		7	9	3
Private unfurnished		13	11	7
Private furnished		0	2 cases	1 case
Rent free		1 case	–	0
N		167	167	310
Rent (£ per week)	Mean	£14.31	£13.12	£18.00
	SD	9.15	8.61	6.78
	N	150	143	276

* Numbers in brackets in this and subsequent tables refer to fewer than 10 cases.

** These results are weighted so that the relations between the numbers of matched clients and all clients are not simply additive. This is true of all tables in this chapter.

Household composition

4.4 Over half (60%) of the households receiving assistance from NEA contain pensioners (Table 4.2). The majority of these contain only pensioners but 28 (9%) of the sample contained pensioners and other people. In all but six of these households, a pensioner was the head of the household.

4.5 The other sizeable group of households were families with children. Of these, 58 were living as nuclear families and a further 29 shared the household with other non-dependents. Of the families with children, 31% were headed by a lone parent — nearly three times the proportion to be expected in a general sample of families with children.

Table 4.2 Household composition: client sample

	N	%
Single pensioner only	116	38
Couple pensioner only	41	13
Other households containing pensioners	28	9
Any household with pensioner	185	60
Adult only household	44	15
Single parent + children	11	3
Couple + 1 or 2 children	32	10
Couple + 3 or more children	15	5
Other hosuseholds with children	29	9
Families with children	87	28

4.6 The most striking difference between the NEA and the comparison group was the higher proportion of single pensioners in the NEA group — 63% compared with with 40% in the comparison group (Table 4.3).

4.7 There are two possible explanations for this difference. The NEA sample was on average slightly older than the comparison sample, more likely to be widowed or divorced, less likely to have working age people (normally a son or daughter) living in the house and the single pensioners were slightly more likely to be women. The NEA sample was more likely to consist of single pensioners because they are less likely to have the capacity to insulate their own houses or have anyone else who can do it for them. The alternative explanation is more mundane — that there are more couples in the comparison group because of the way the sample was chosen. There is less chance of finding someone at home in a single person household. We cannot be certain which explanation is the more important but it is possible to be reasonably confident that the sampling procedure is not responsible for the whole difference and the single pensioners are more likely to need the help of the NEA to insulate their dwelling.

Income

4.8 All but 9% of the households helped by NEA were dependent on state benefits for all or part of their incomes (Table 4.4). Over

Table 4.3 Household compositions: matched samples

	Matched samples		
	Client	Comparison	
	N	N	
Single pensioner only	105	67	
Pensioner couple only	41	73	
Single pensioner + other adults	15	16	
Pensioner couple + other adults	4	8	
Others	2	3	
N	167	167	
Mean age of head of household (years)	73.3	72.6	
% with working person in h/h	4.8	7.2	N = 167
% single pensioners female	81.9	79.1	

half of the sample contained retirement pensioners and 51% of these were also receiving supplementary pensions. In a sample from the general population only about a third of retirement pensioners would be receiving supplementary pensions.

4.9 Of the 123 (unweighted) households not receiving retirement pensions:

77 were receiving supplementary benefits
6 were on invalidity benefit only
12 were on other social security benefits but not supplementary benefit

4.10 This left 28 households who were maintaining themselves in the labour market. 21 of these households were families with children receiving child benefit. In general very few of those receiving social security benefits had any income from earnings — for example, only 4% of pensioner housholds and only 8% of householders receiving supplementary benefit had any income from work.

Table 4.4 Sources of income

Sources	Matched Samples		
	Client N=167 %	Comparison N=167 %	All clients N=310 %
State retirement pension	95	95	51
Supplementary benefit	46	27	55
Housing benefit	47	46	22
Occupational pension	33	50	18
Income from savings	20	27	5
Regular suport from relative living in household	7	10	14
Earnings	[2]	7	16
Other sources	25	17	13

4.11 There were differences in the sources of income between the NEA sample and the matched comparison households. In particular the pensioners in the comparison group were less likely to be in receipt of supplementary benefit, more likely to have an occupational pension, income from savings, income from other relatives living in the household and income from earnings. There was only one household in the NEA sample not either dependent on a retirement pension or supplementary benefit or both. This compares with eight households in the comparison sample.

4.12 However, when their actual incomes are compared there did not appear to be any significant differences between the two groups. We did not carry out a full income assessment in the survey but respondents were asked to state their total net household income or, if they were unwilling or unable to do this, they were asked to give an estimate of where their income fell within a range; 84.2% in the NEA group and 78.7% in the comparison group gave estimates of their income. There we converted into a crude measure of equivalent income (treating the first person in the household at 1 unit, the second and subsequent as 0.6 units) and we found that the income levels are very similar (Table 4.5). The table also compares incomes separately for single pensioner and couple pensioner households. The incomes of both groups are almost identical. Of those 75 who were unable to specify a net income, over half (45) were able to place their income within a range. This was converted into a weekly equivalent income and the results are compared in Table 4.5 for the matched samples. The NEA group's income appears to be about £9 per week higher than that of the comparison group. However, given the crudeness of the estimate and that the NEA mean is based on only 17 cases, it is probably safer to trust the earlier result that there is no difference in the incomes of the two groups.

4.13 The difference between the two groups in the sources of income and yet the resultant similarity in their income levels is not unexpected in a sample of pensioners where the range of income is narow and additional resources small. What we can say with certainty as a result of this analysis is that householders who were assisted by NEA did appear to be more likely to be eligible for help with the costs of draught proofing by virtue of receiving supplementary benefit. Those not assisted were marginally more likely to have resources in the form of savings and income from relatives that might enable them to do the work themselves.

Table 4.5 Level of income

Income: specific estimate			
Matched samples	Mean (£) Equivalent income	SD	N
Client	40.13	10.90	139
Comparison	40.33	13.22	120
Single pensioners	Mean (£) income		
Client	40.65	10.62	92
Comparison	42.84	13.59	55
Couple pensioners			
Client	64.10	13.27	35
Comparison	64.16	20.24	48
Income: range only given			
Matched samples	Equivalent income (£)	SD	N
Client	55.70	32.66	17
Comparison	46.16	21.26	28

B Heating arrangements and fuel expenditure

Heating arrangements

4.14 Over half (51%) of the clients of NEA had central heating, compared with 63% of all households in the 1982 Family Expenditure Survey (FES)[1]. The clients were slightly less likely than the comparison sample to have central heating, as seen in Table 4.6. These figures for the matched clients and comparison sample are very close to those having central heating in the lowest quintile of the income distribution in the FES, which consists mainly of pensioners, where 47% have a central heating system. The most common type of central heating was gas, with around two thirds of those with central heating using this fuel; solid was the next most common and fewer than ten households in both groups used electric central heating.

4.15 There was considerable variation in the use of central heating in the sample from each area: LOTHIAN, MIDLAND and BOROUGH were less likely to have it and BOROUGH and

Table 4.6 Proportions with central heating

	Matched Samples Client %	Comparison %	All clients %
With central heating	44	48	51
No central heating	56	52	49
N	167	167	310

LOTHIAN are considerably less likely to have gas central heating with no case in LOTHIAN with gas central heating. Very few in LOTHIAN had a gas supply.

4.16 Approximately 60% of those in both client and comparison samples with central heating had central heating outlets in kitchen, bathroom, landings and passages but the clients were less likely to have outlets in the kitchen (61% compared with 67%) and the hall (63% compared with 73%).

4.17 There is concern that low-income households which have central heating systems installed in their homes do not use them, but almost 90% of both clients and the comparison sample said they used their central heating all through the winter. This is a higher percentage than that quoted in the General Household survey 1981[2], but the difference is likely to be because the percentage here refers to use of central heating, not use of central heating as the main source of winter heat. Clients (both the matched sample and all clients) were less likely to have used their central heating as much as they would have liked (51% and 49% compared with 32% of the comparison sample). Interestingly, when asked why they have not used the central heating as much as they would have liked, the matched clients were less likely to mention expense than the comparison sample and more likely to mention other reasons such as that the system had no controls or was not working.

Table 4.7 Use of central heating

	Matched Samples Client %	Comparison %	All clients %
Used all through winter	87	90	84
Only on very cold days	10	10	11
Not used	[3]	0	[4]
N	71	79	197
Used as much as wanted: Yes	49	67	51
No	51	33	49
N	71	79	190

4.18 Matched clients and the comparison sample were equally likely to have time clocks and room thermostats on their central heating systems but the clients were less likely to have individual controls on each outlet (radiator, duct). There was also little difference in whether the controls were adjusted or not.

4.19 Central heating was the most usual source of heat in the living room for the sample of clients of NEA with 50% using it. For the matched client and comparison sample the most usual source was a mains gas fire, 45% of the comparison sample and 48% of the clients used this (see Table 4.8). Central heating was the next most common, used by a third of both the client and comparison sample. A further 7 to 9% used solid fuel and 5% used an electric fire.

4.20 Over a third of both client and comparison samples did not heat the kitchen and just under a third of both samples used central heating, the most common form of heating for the kitchen. Similar proportions of both samples (about a third) did not heat the bedroom but those in the comparison sample were more likely to use central heating, as was the sample of all clients.

Table 4.8(a) Method of heating living room

	Matched Samples Client %	Comparison %	All clients %
Central heating	32	34	50
Night storage	[3]	[1]	[1]
Electric fire	5	5	3
Mains gas fire	48	45	31
Open fire	9	7	9
Solid fuel closed	[1]	4	4
Paraffin	[1]	2	[1]
Other	[1]	[1]	[2]
N	167	167	310

Table 4.8(b) Method of heating bedroom

	Matched Samples Client %	Comparison %	All clients %
Central heating	34	40	48
Night storage	3	1	[1]
Electric fire	18	21	7
Mains gas fire	8	4	3
Other	6	2	3
Not heated	31	33	37
Number with bedroom	154	160	308

4.21 The amount of time (see Table 4.9) the living room was heated was similar for both matched client and comparison samples although there was a tendency for the clients to be more likely to heat for shorter periods than the comparison sample (32% of clients only heat for part of the day compared with 24% of the comparison sample). Bedrooms were likely to be heated for similar periods of time for both clients and the comparison sample. When asked why the living room and main bedroom were not heated for longer, the clients were much more likely to give expense as the reason (60% compared with 49%) than the comparison sample. The proportion of the total matched samples are of course smaller but still one in four of clients and one in six of the comparison group say they cannot afford to heat for longer. The comparison sample were more likely to say the did not feel the need to heat longer. The sample of all clients, including younger households, although the pattern is similar, tended to heat the living and bedrooms for rather less time.

4.22 Matched clients were more likely to live in homes with 3 or fewer rooms than the comparison sample but both samples used three-quarters of the rooms in the home and heated just under 70% of the rooms. About half of each sample had unheated hall, landing and passages — slightly more of the matched client sample.

4.23 A number of questions were asked about fuels used for cooking and water heating and about which appliances were owned. One of the more interesting findings was that the matched clients were more likely (39% compared with 32%) to use an immersion heater to heat water for baths and showers. The propor-

Table 4.9(a) Amount of time rooms heated

	Living room Matched Samples Client	 Comparison	All clients	Bedroom Matched Samples Client	 Comparison	All clients
	%	%	%	%	%	%
All day and night	8	9	16	5	4	5
All day and evening	60	67	54	14	11	12
Part of day or evening	32	24	31	35	47	32
Occasionally (very cold, visitors, ill)	0	0	[2]	12	13	8
This room never heated	1	0	0	32	35	40
N	167	166	310	165	162	308

Table 4.9(b) Reasons for not heating longer

	Living room Matched Samples Client	 Comparison	All clients	Bedroom Matched Samples Client	 Comparison	All clients
	%	%	%	%	%	%
Don't feel the need for it	36	46	31	41	53	42
Can't afford it	60	49	51	41	38	30
Other including no fireplace or heater	[4]	[5]	12	[7]	[3]	10
N	50	37	98	122	133	257

tion using this expensive method of heating water was relatively high in both samples.

4.24 This analysis of the heating systems of the matched clients and comparison sample suggests that the clients on the whole have slightly less satisfactory arrangements than other pensioner households in the neighbourhood, they are less likely to have a whole house system; they are also less likely to have living rooms heating for as long as they would wish or to have used their central heating as much as they would have liked.

Dampness and condensation

4.25 A larger proportion of the clients than the comparison sample reported problems with dampness and condensation, 57% compared with 40% (Table 4.10). Damp patches/mould on walls was the most common problem mentioned, followed by moisture on window sills, then moisture due to cooking or laundering. The matched clients were no more likely to say it was a serious problem. Equal proportions (66%) of all samples said they had tried to do something about the dampness; the most common actions were to open windows and doors and to weather strip the windows.

Table 4.10 Proportion reporting problems of dampness and condensation

	Matched Samples Client	 Comparison	All clients
	%	%	%
YES	57	40	56
NO	43	60	44

Expenditure

i) *Purchase of fuel*

4.26 Even in the low income sample of matched clients and comparison households 82% paid for electricity by a quarterly account and only 6% by slotmeter. The only difference between the clients and the comparison sample was that households in the comparison group were more likely to use a board budgeting scheme. Exactly the same proportion of matched clients and comparison households have a gas supply — not surprising in view of the match of their housing. However, 4% of the client sample do not use their gas supply compared with the 100% use by the comparison sample. More than twice the proportion of both clients and comparison sample paid by slotmeter for gas compared with electricity (14% of comparison households and 12% of clients) and some 73% paid by quarterly accounts.

4.27 A purchase of solid fuel, usually two 50 kg bags, would last on average approximately four weeks, slightly longer for the client sample. Although average weekly expenditure on paraffin was similar for the matched client and comparison samples, there was some evidence that the clients purchased smaller amounts more frequently, in that the most common amount purchased by clients was one gallon and for the comparison sample it was 2 gallons. Similarly, the 10% of clients who used bottled gas seemed to purchase it more frequently than the comparison sample, 6% of whom use it. The average purchase of the comparison sample cost £10 and would last 6 weeks whereas the average purchase of the client cost £8 and would last on average 5 weeks.

ii) *Use and expenditure on different fuels*

4.28 The use of and expenditure on different fuels is shown in Table 4.11 including overall weekly expenditure on all fuels. The information was built up from questions similar to those used in the Family Expenditure Survey for electricity and gas from questions based on those in the supplementary questionnaire on fuel expenditure included in the Northern Ireland Family Expenditure Survey since 1980, for solid fuel, paraffin and bottle gas. Thus for those who pay for gas or electricity by account, the weekly expenditure is taken from the last bill received and converted to a weekly figure after the deduction of any special charges or rebates. Slotmeter expenditure comes from the answer to 'What has been the average weekly money put in the meter over the past three months?' Special charges and rebates were again deducted. Those paying by fuel direct were asked what was the weekly amount deducted from benefit and for those paying by board budget, or similar arrangements, the procedure was similar to those paying by account.

4.29 The question on other fuels asked whether a particular fuel was used, how much was bought and its cost and how long it would last at this time of the year (March/April 1983). The average weekly expenditure on each fuel was estimated from this information. Overall weekly expenditure on all fuels was computed from the amounts spent on individual fuels.

4.30 As all interviews took place within a short period there is not the problem of seasonality encountered in the FES data on fuel expenditure; the questions on solid fuel also overcome problems of bulk purchase. There remains a slight discrepancy in the time period referred to in the weekly expenditure derived from a quarterly bill and that for those using a slotmeter. However, for the great majority of cases the average weekly expenditure for the last three months for slotmeter users will cover a similar period to the last quarterly bill.

4.31 In the analysis of expenditure on fuel, although the differences between the client and comparison samples are not great, there does seem to be a tendency for the clients of NEA to spend less on fuel and to buy fuels not bought on credit little and often. Overall, the fuel expenditure of the matched clients was approximately £1 less than that of the comparison sample perhaps because of the differences in heating arrangements observed earlier. In this context it should be noted that the higher fuel expenditure of the non-pensioner clients is due to larger households and homes although they are more likely to heat the living room for shorter periods of time.

(iii) *Ease of payment*

4.32 Only 6% of the matched clients claimed that it had been very easy to pay for fuel over the past year compared with 11% of the comparison sample and 68% said it was difficult or very difficult compared with 57% of the comparison sample. When those who said that paying for fuel was anything other than very easy were asked what they had done in the past year to budget for fuel, the clients were more likely to mention a wider variety of strategies. For example, the matched clients were more likely to have bought fuel stamps, put money aside regularly, used money put aside for something else, delayed payment, borrowed money, cut down on use of fuel, and contacted social services or the local social security office for help. They were much more likely to have cut back on food (26%) and other spending (52%) compared with the comparison (14% and 43% respectively). The comparison sample was much more likely to have used personal savings (36% compared with 27%) but both samples were equally likely to use easy payment methods such as slotmeters, board budget or fuel direct. Interestingly, the client sample as a whole, which included younger households, was less likely to put money aside regularly, more likely to have made some payment arrangement and more likely to delay payment than either of the pensioner samples. This discrepancy is consistent with the lower likelihood of pensioners being in debt for fuel. Younger households seem to have greater difficulty in managing expenditure — perhaps because the demands on the budget are more diverse and less easily controlled.

4.33 The client sample was also more likely to have been in arrears with fuel bills at some time in the previous three years and more likely still to be in arrears. One client and one of the comparison sample had had electricity and gas disconnected in the past three years.

Table 4.12(a) Difficulty in paying for fuel

	Matched Samples		
	Client %	Comparison %	All Clients %
Very easy	6	11	7
Fairly easy	26	32	24
Rather difficult	46	40	40
Very difficult	22	17	25
Other	0	0	4
N	166	166	310

(iv) *Fuel expenditure and different household circumstances*

4.34 When the fuel expenditure of the matched client and comparison sample were compared for households in similar circumstances the comparison sample generally spent more and this difference was maintained throughout the variety of circumstances investigated. The pattern of expenditures for different circumstances was similar for both groups, increasing both with difficulty of payment and dissatisfaction with cost (see Table 4.13).

Table 4.11 Expenditure and use of different fuels

	Matched Samples					
	Client		Comparison		All Clients	
	Expenditure £ per week	Use %	Expenditure £ per week	Use %	Expenditure £ per week	Use %
Electricity	3.45	100	3.61	100	4.16	100
Gas	4.48	83	5.00	87	4.89	84
Solid fuel	7.51	17	7.21	16	7.44	16
Paraffin	2.05	13	3.00	13	1.74	12
Bottle gas	1.36	10	2.19	6	2.19	6
Expenditure on all fuels	8.60		9.69		9.91	

Table 4.12(b) Budgeting strategies

	Proportions using the named strategies Matched Samples Client %	 Comparison %	 All Clients %
Pay with:			
Slotmeter, budget plan, or fuel direct	23	22	31
Bought saving stamps	15	7	16
Put money aside regularly	83	79	64
Use personal savings	27	36	13
Use money set aside for something else	30	28	28
Delay payment	12	9	20
Borrowed or got help from family or friends	8	7	9
Cut back on food	26	14	19
Cut back on other spending	52	43	40
Cut down on use of fuel	49	45	44
Contacted DHSS or social services	15	11	16

(v) *Fuel expenditure as a proportion of income*

4.35 Fuel expenditure as a proportion of income was derived using the fuel expenditure variable and an income variable which combined the responses given to the question about household income with those of the respondents who were only prepared to give their household income within a range. These latter responses were set at the mid-point of the range for inclusion in the household income variable. The pensioner samples of clients of NEA and the comparison group spent 18% and 19% of income on fuel, respectively. This compares with 14% for pensioner households and with 9% for all households in the 1982 FES for the corresponding winter quarter. Overall the clients of NEA spend a relatively high proportion of their income on fuel (20% on average). Fuel expenditure as a proportion of income increased with difficulty in payment and as income declined.

(vi) *Temperatures*

4.36 Information on expenditure cannot say much about the levels of comfort experienced in a dwelling. There is some subjective information in the question about satisfaction with warmth and whether the heating system is adequate and householders felt

Table 4.13 Fuel expenditure for different household characteristics

	Matched Samples Client Mean (£/week)	 S.D.	 N	 Comparison Mean (£/week)	 S.D.	 N	 All Clients Mean (£/week)	 S.D.	 N
(a) *Satisfaction with cost*									
Very satisfied	6.08	3.35	6	[11.02]	[0.91]	4	7.26	3.56	12
Fairly satisfied	8.38	4.27	52	9.29	3.56	41	7.93	3.79	51
Rather dissatisfied	7.56	3.25	43	9.63	4.26	56	9.57	4.32	89
Very dissatisfied	10.50	4.98	37	10.54	5.15	39	11.90	5.04	73
(b) *Ease of payment*									
Fairly easy	7.46	3.72	36	8.42	3.56	46	8.20	3.77	48
Rather difficult	8.65	3.95	65	9.96	4.56	61	7.91	3.99	86
Very difficult	9.39	3.28	27	10.07	4.40	25	12.35	5.48	61

Table 4.14 Fuel expenditure as a proportion of income for different household characteristics

	Matched Samples Client Mean %	 S.D.	 N	 Comparison Mean %	 S.D.	 N	 All Clients Mean %	 S.D.	 N
(a) *Ease of payment*									
Fairly easy	16	8	34	15	10	38	15	7	46
Rather difficult	19	9	59	20	13	56	19	9	79
Very difficult	20	9	27	23	16	24	22	13	61
(b) *Sources of income*									
Supplementary benefit	21	10	63	25	18	37	22	12	130
Occupational pension	15	9	42	16	7	58	14	8	34
Income from savings	15	9	27	16	8	38	16	8	13
(c) *Income*									
£20–35	25		30	27		14	25		56
£35–50	19		49	23		38	22		71
£50–75	16		38	16		50	17		50
£75 and over	10		13	11		24	12		37
All households	18	10	130	19		126	20	11	214

warm enough. Responses to being 'warm enough' may vary considerably with expectations and may already be adjusted to what can be afforded. Although readings of temperatures in dwellings are notoriously difficult to take with any accuracy, it was considered important to have some objective measure of comfort. Interviewers therefore used easy-to-read, digital thermometers to take temperatures in the room where the interview took place and outside the home. Since the Table 4.15 refers to the measured internal temperatures of the homes as well as the difference between comparison client groups, it is important to check the calibration of the thermometers. This was done by comparing the measured external temperatures with the morning and afternoon temperatures at the nearest meteorological station for the period of the interviews. Not surprisingly, the differences between these two external temperatures showed some variance; the mean difference of 1 % was not statistically significant and we can conclude that there is no evidence of systematic bias overall. For one interviewer/thermometer a systematic discrepancy was noted and the results reported below were adjusted for bias.

4.37 The mean difference between the temperature in the interviews was found to be 1 °C with clients having the lower temperatures. The same inteviewer using the same thermometer recorded the temperatures in both so that the difference should be free of bias. This difference is significant at the 1 % level. These results tend to confirm the impression of less satisfactory heating arrangements for the clients. The average temperatures of 16 °C and 17 °C for client and comparison sample respectively are low compared with various standards for living rooms. The minimum required by the Offices, Shops and Railway Premises Act (1983)[3] is 16 °C and the temperature recommended by the DHSS in 1972 to keep elderly people comfortably warn is 21 °C.[4]

4.38 The patterns of different temperatures associated with different household circumstances were similar for both client and comparison samples. Lower temperatures were associated with difficulty in paying and less adequate heating and those who were dissatisfied with the warmth of their homes did have lower average temperatures. Temperatures remained much the same over the income range for the pensioner client sample but did seem to increase with income for the corresponding comparison sample and for both samples those with income from savings had higher temperatures. The variation in average temperatures was less for the client group than the comparison sample. Central heating seemed to have the expected effect on temperatures as seen in the comparision of temperatures for those with gas central heating with those with none. Little variation with ease or difficulty with payment suggests that it is not overheating the home which results in difficulty in payment.

Conclusion

4.39 The households helped by NEA are predominantly low income households, mostly elderly pensioners but with some single parents and other low income families with children; almost all the households assisted are dependent on social security benefits. We can draw two conclusions from the characteristics of the NEA clients and the comparison group: first the many respects in which the samples are similar indicates that despite the rather novel method we used to find a comparison sample, we have obtained one which is not too dissimilar in its basic characteristics to be used to contrast with the NEA sample. Thus for example, we can be reasonably confident that any differences we observe in the comfort level or fuel expenditure between groups is not just the result of differences between the groups. In particular the NEA group are more likely to be single pensioners, more likely to be receiving supplementary benefit and less likely to have income from other sources.

4.40 The second part of the chapter looked at the heating arrangements and fuel expenditure and indicated that the heating arrangements of the clients were less satisfactory than those with similar homes in the neighbourhood. Also, temperatures in the living room were lower on average for the clients than the comparison sample. The average temperatures of both the client and comparison samples were lower than suggested by the DHSS as necessary to keep elderly people warm at home. Thus it

Table 4.15 Temperatures and household characteristics

	Matched Samples								
	Client			Comparison			All Clients		
	Mean (C)	S.D.	N	Mean (C)	S.D.	N	Mean (C)	S.D.	N
(a) *Type of central heating*									
None	15	4	87	17	4	79	15	3	108
Gas	17	4	32	18	3	28	16	4	87
(b) *Adequacy of heating*									
Not adequate, not warm	14	4	15	15	3	19	14	4	26
Not adequate, warm enough	16	4	33	15	3	26	15	4	61
Adequate, too expensive	17	4	62	17	4	50	15	5	109
Adequate and warm	17	4	45	18	4	54	17	3	90
(c) *Satisfaction with warmth*									
Very	21	3	12	18	3	46	18	4	19
Fairly	15	4	46	17	4	58	14	4	66
Rather dissatisfied	16	4	55	16	3	32	17	4	111
Very dissatisfied	15	3	43	14	3	14	15	4	94
(f) *Sources of income*									
Supplementary benefit	16	4	73	17	3	40	16	4	165
Occupational pension	16	5	50	17	4	76	16	4	47
Income from savings	17	5	33	19	4	40	17	4	16
All households	16	4	154	17	4	151	16	4	282

is likely that a high proportion of elderly households such as these have lower temperatures than this standard. Fuel expenditure and fuel expenditure as a proportion of income were lower for the client sample, suggesting that the clients of NEA are restricting expenditure on fuel at the expense of their comfort. Both samples spent a relatively high proportion of income on fuel.

4.41 There is evidence from this analysis that the clients of NEA have rather more difficulty in achieving a warm home than others in similar circumstances, which supports the conclusion that NEA is reaching households which could be considered to be in fuel poverty. However, as clients' difficulties are still apparent after NEA have done their conservation work, this also suggests that these measures are only one part of any package necessary to ensure a warm home.

References

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Chapter 5 Insulation and comfort levels prior to intervention by Neighbourhood Energy Action

Insulation characteristics pre NEA intervention

5.1 The purpose here is to determine levels of insulation in client households before they came into contact with the project and to compare these with the insulation levels in similar households in the neighbourhood. This comparison shows whether the clients were worse off or similar to the comparison sample prior to their contact with an NEA project. The results are outlined in Table 5.1.

Table 5.1 Proportions with insulation

	Matched samples		
	Client %	Comparison %	All clients %
With loft insulation	29	71	59
base = those with accessible loft	n = 118	n = 116	n = 231
With hot water tank insulation	59	75	59
base = those with HW tank	n = 141	n = 142	n = 284
With draught proofing	47	52	47
base = whole sample	n = 167	n = 167	n = 310

5.2 The most striking aspect of these figures is the lower percentage of client households who had any loft insulation prior to NEA intervention, only 59% of all clients with an accessible loft as compared to national statistics of 83%. In the matched sample the difference between clients and the comparison group is equally great. Only 29% of clients have loft insulation in contrast to 71% of the comparison sample. Similarly, with hot water tank insulation, although the level of penetration is around 60% for client households, again lower than national figures, it is also lower than the 75% in comparison households.

5.3 In contrast to loft and tank insulation, the figures for draught proofing of doors and windows indicate little difference between client and comparison samples with approximately 50% of both having some form of draught proofing.

5.4 A possible explanation for these differences in loft insulation can be seen in Table 5.2, which indicates who was responsible for the installing the insulation.

Table 5.2 Agents installing loft insulation

	Matched samples		
	Client %	Comparison %	All clients %
Commercial firm	26	29	9
Someone in households	6	15	1 case
Relative/friend	6	7	1 case
Landlord	35	31	72
There when moved in	12	17	11
Other/don't know who	15	1 case	6
N	34	83	136

5.5 Table 5.2 shows that in general, NEA clients rely on their landlord for the provision of loft insulation. Matched clients in contrast to comparison households were less likely to have taken action themselves by DIY or to have inherited an insulated loft. It is interesting to note here that amongst the comparison households eligible for a Home Insulation Grant (i.e. those falling in the commercial firm/someone in household/relative/friend categories (see Table 5.2)) 20 households (60%) said they had not obtained one. The equivalent figure for the client households is approximately 50% but in this case the numbers are rather small (N = 17).

5.6 For hot water tank insulation there are few differences between client and comparison households with regard to the agent installing it and the same is true for draught proofing. In this latter instance it was householders themselves who were responsible for the large majority of installations with no other person making an appreciable contribution.

Satisfaction with heating systems

5.7 In order to obtain an assessment of householders' views of their heating system, respondents were asked to indicate their level of satisfaction with the system on three criteria: the amount of warmth it gave them, how much it cost them to run, and its ease and convenience of use. Clients were asked to make this a retrospective evaluation, i.e. prior to their contact with NEA, whereas the comparison households based their judgements on present experience (i.e. at the time of the interview).

Table 5.3 Satisfaction with heating system

	Mean*	% very satis.	% fairly satis.	% rather dissatis.	% very dissatis.
(a) *Matched clients*					
How warm able to keep	2.8	8	29	36	27
How much it *cost* to run	2.8	[4]	37	34	25
Ease and convenience of system	1.7	41	48	8	3
(b) *Comparisons*					
How *warm* able to keep	2.1	30	40	20	10
How much it *cost* to run	2.9	[4]	31	40	25
Ease and convenience of system	1.6	56	34	7	[3]
(c) *All clients*					
How *warm* able to keep	2.9	6	23	40	31
How much it *cost* to run	2.9	[4]	27	39	30
Ease and convenience of	1.8	46	35	12	7

* The scale of satisfaction was as follows:
1 = very satisfied
2 = fairly satisfied
3 = rather dissatisfied
4 = very dissatisfied

5.8 The results outlined in Table 5.3(a), (b) and (c) indicate few differences between clients and the comparison sample with respect to the cost and ease and convenience criteria. For both groups a majority was dissatisfied with the amount of money the heating cost them, but was satisfied with its ease and convenience. In contrast, there was a considerable difference between the groups concerning the warmth criterion. The majority of clients expressed dissatisfaction with the warmth obtained, while the majority of comparison households said they were satisfied.

5.9 When those respondents who expressed disatisfaction with the warmth obtained were asked to explain the reason for this, there was another interesting difference between clients and the comparison sample. The majority of clients said that draughts were the main problem, whereas the majority of comparison households said that they were dissatisfied because of the cost (see Table 5.4).

Table 5.4 Reasons for dissatisfaction with warmth obtainable from heating system

	Matched samples Client %	 Comparison %	 All clients %
Draughty	60	26	73
Cost	19	50	16
Unsatisfactory	17	26	16
Cold house	24	28	21
Lack of insulation	[5]	[2]	[1]
Other	9	8	11
N	106	50	220

Draughts and their prevention

5.10 There is no doubt that draughts were a major problem for clients prior to the intervention of NEA, and although we have noted that there was no difference in the proportion with draught-stripping between the groups, the clients appeared to be much less satisfied with their level of comfort. Of all clients, 96% said they had suffered from *uncomfortable* draughts from their doors and 86% from their windows. The majority (80%) described their home as '*very* draughty'. Draughts were a problem throughout the home rather than being restricted to particular rooms such as the main living room. In contrast, only about 50% of the comparison sample said they suffered from draughts and over half of these described their home as being 'just a bit' draughty. These differences between the groups may be explained by the adequacy of existing draught proofing which was judged to be 'effective' by 50% of the comparison households, but by only 26% of client households.

5.11 In addition to draught proofing doors and windows, households had taken a number of other actions to prevent draughts. Slightly more clients (63%) had done so than comparison households (50%). The most popular actions were aimed at preventing draughts through doorways by placing a rug or sausage along the bottom or by hanging a heavy curtain over them.

Measures taken to increase comfort and reduce fuel bills

5.12 Given that our sample consisted of disadvantaged households, both in terms of the thermal characteristics of their homes and disposable income to spend on fuel, heating systems and home improvements, it was of interest to discover what kinds of measures they had taken, if any, to improve their level of comfort and/or reduce their fuel bills prior to NEA intervention.

5.13 Table 5.5 indicates that some 55% of NEA clients report some measures. Both the matched client and comparison households were evenly divided between those who had been doing something and those who had done nothing. Table 5.6 outlines the type of measures employed.

Table 5.5 Percentage of households taking measures to reduce fuel bills and/or increase comfort

	Matched samples Client %	 Comparison %	 All clients %
measures taken to increase comfort/warmth and reduce fuel costs	7	5	11
Measures taken to increase comfort/warmth only	6	4	7
measures taken to reduce fuel costs only	37	42	37
No meausres taken	50	49	45
N	167	167	310

Table 5.6 Energy efficiency measures

	Matched samples Client %	 Comparison %	 All clients %
Restricted use of space and water heating	24	29	33
General care	12	13	7
Technical changes	11	13	8
Restricted use of appliances, lights	6	[5]	4
Changes of lifestyle	7	[5]	5
Change to cheaper fuel	[5]	[2]	6
Other measures	[5]	[5]	4
Mean number of measures per household	0.81	0.82	0.75
N	167	167	310

5.14 The most common measures reported were:

1 To restrict the use of both space and hot water heating. Typically, this meant heating fewer rooms, using the heating for shorter periods, only heating water when required and using less of it.

2 To be generally careful about how much fuel was used around the home. Included in this category were such activities as ensuring doors and windows were closed and more vague responses concerning economy which were not specific enough to be included in other categories.

3 To make what we have called technical changes to the dwelling and heating systems. Included under this category are the installation of draught proofing and hot water tank insulation and the purchase and use of more energy efficient space and water heating appliances.

5.15 Other less common measures included: (a) changes in lifestyle, for example, going out of the house more often, putting on extra clothing, going to bed early; (b) changing to a cheaper fuel, for example, cheaper tariff electricity, burning poorer quality solid fuel, using paraffin heaters instead of electric fires and (c) restricting the use of appliances and lights.

5.16 There were few differences between clients and comparison households either in the type or frequency of the measures they reported. The mean number of energy saving measures reported per household was 0.8 for both groups.

5.17 The major reason given by householders who had not taken any measures to reduce fuel costs was that they were already as careful as possible and that there was nothing more they could do to cut back without reducing their comfort to unacceptable levels. Other reasons included the need for maintaining a certain level of heat by the elderly, disabled and those with young children. Some householders said they did not feel the need to cut down because there was no financial pressure to do so, and this response was more frequent among comparison (34%) rather than client households (19%).

Conclusions

5.18 In this chapter we assess, for clients prior to the intervention of NEA and for the comparison households, levels of home insulation, how the insulation was obtained, satisfaction with heating systems and levels of comfort, reasons for dissatisfaction with home heating and actions taken either to improve comfort or reduce fuel bills.

5.19 Only 59% of potential NEA clients had loft or hot water tank insulation, a proportion considerably below national averages. While NEA clients were generally satisfied with the ease and convenience of their heating systems, the majority were dissatisfied with both warmth achieved and running costs. The main cause of their dissatisfaction with the warmth achieved was that their homes were very draughty. Only 26% with existing draught proofing thought that it was effective. We can conclude therefore that the clients, before contact with NEA, were living in poorly insulated, draughty homes. We find evidence that the matched clients were more disadvanted in terms of insulation levels and comfort than comparison households. Only 29% of the client sample had loft insulation in contrast to 71% of the comparison group, the respective percentages for hot water tank insulation of 59 and 75 also show the clients to be more disadvantaged.

5.20 While levels of draught proofing were similar, its adequacy was judged to be less effective by clients who also were more likely to complain of having a draughty house. In terms of their home heating the comparison group was satisfied with the level of comfort achieved, but dissatisfied with running costs, the clients were dissatisfied on both grounds. Further suggestive evidence that the comparison households may be in more favourable circumstances than clients comes from the finding that, of those who had done nothing to reduce fuel costs, 34% of the comparison group but only 19% of clients, said there was no need to bother.

Chapter 6 Factors influencing awareness of and participation in projects

6.1 The difficulties in targetting particular groups of deprived consumers and persuading them to take advantage of services or grants which are available to meet their needs, are well known. In contrast to national initiatives, local schemes which by their very nature are closer to the householder should be more able to reach deprived consumers living in their neighbourhood. We were therefore particularly interested to discover:

1 How client households first came to hear of and eventually contact their local scheme and their motivation for doing so.

2 Whether any householders in the comparison group were aware of the existence of their local scheme and if so, how they became aware.

3 Why 'aware' households in the comparison group failed to take up the service.

6.2 When we asked how clients first came to hear about their local scheme, a variety of channels of information were mentioned (see Table 6.1).

Table 6.1: How people first came to hear of the scheme

	Matched clients %	All clients %
Poster/leaflet/advertisement	14	24
Read in paper/radio	11	15
Pensioner club	[2]	4
Local club/meeting	[4]	7
Friend etc. helped by scheme	19	16
Friend—not helped by scheme	11	9
Government/L.A. agency	9	9
Someone from scheme	14	12
Other	12	4
Don't know, can't remember	[1]	2
N	167	310

6.3 Although no one channel predominated, the most effective appear to have been the scheme's own posters and leaflets advertising their service, publicity in the local press and radio and recommendations from friends or acquaintances who had already been helped by the scheme.

6.4 Having heard about the scheme and the service offered, the most common way in which clients made contact was through their own initiative, either ringing up or personally calling at the scheme's office (see Table 6.2). In only a few cases did another agency or individual act on behalf of the client, although there was a small percentage of clients (mostly pensioner clients) who were contacted by direct canvassing.

6.5 The main reason why clients wanted NEA to carry out work on their homes was because they expected it would make them warmer specifically by reducing draughts (see Table 6.3). There was also a substantial percentage who expected a reduction in their fuel bills.

Table 6.2: How contact was made with the scheme

	Matched clients %	All clients %
Own initiative	52	60
Pensioners' club	[1]	[2]
Local group/meeting	[2]	0
Friend helped by scheme	[5]	3
Friend not helped by scheme	6	5
Social services	[2]	[2]
Social security	0	0
Health services	[1]	0
Housing department	[2]	6
Direct canvas/door knocking by scheme	13	9
Don't know, can't remember	[5]	7
Not answered	[5]	3
N	167	310

Table 6.3 Expectations of insulation work

Expectations mentioned by:	Matched clients %	All clients %
Expected home to feel warmer	95	95
Fuel bills to be smaller	49	50
Fewer draughts	93	96
Other changes	13	8
N	167	310

6.6 Significantly, over half of our sample had never thought of having insulation installed prior to their contact with NEA (see Table 6.4). This shows how unsuccessful existing publicity has been in raising awareness amongst the disadvantaged and older consumers. For those who had considered having such work done, the major reason for not doing it was that it was beyond their means. Nor surprisingly, the main reasons given for choosing the scheme to do the work was the negligible cost involved (see Table 6.5).

Table 6.4 Whether clients had considered having work done before contact with scheme

	Matched clients %	All clients %
YES	48	34
If YES, why not		
Just never got round to it	17	14
Couldn't afford it	47	58
I couldn't do it myself	[7]	[4]
Didn't know who could do it	16	10
Other	11	16
N	80	104

Social networks and client referrals

6.7 The finding that 30% of clients heard about the local project through friends, relatives and neighbours, suggests that social networks may be important mediators in determining the

Table 6.5 Reasons for choosing the scheme

Cost factors mentioned by:	Matched clients	All clients
	%	%
No cost/didn't have to pay	9	29
Low cost/cheapness	28	14
No labour costs	2 cases	2 cases
Grants available	10	6
Couldn't afford it myself	9	11
To reduce costs (in long run)	[4]	9
Other cost reason	2 cases	[2]
N	167	310

effectiveness of a scheme's ability to attract its target group. The questionnaire included a number of items measuring the extent to which households were socially integrated in their locality. These were, length of residence, inter-household communication and membership of local organisations. A combination of these was computed to form a measure of social integration for each household. In line with other research, this measure of social integration was related to the degree of urbanisation of the area. Households in the rural scheme (LOTHIAN) showing highest social integration scores while those in the largest urban area (BOROUGH) had the lowest.

6.8 Of these measures of social integration the level of inter-household communication differed significantly between the five projects. In rural and provincial areas households were more likely to have friends and family living close by and more social contracts than their urban counterparts.

6.9 Since such social networks have been shown to be important in the diffusion of innovations, we conducted an ex post facto analysis relating the way in which clients contacted the scheme to their level of social integration as measured by the inter-household communication indicator.

6.10 This analysis might show how projects working in different types of localities might tailor promotional strategies to maximise client referrals. Social psychological research would predict that in areas of high social integration, working through social networks would be most effective while local media/direct canvassing would be better in an area of low integration.

6.11 In Table 6.6 the percentages of clients hearing of the project through different channels are shown. The project localities have been ordered by level of social integration from low to high.

Table 6.6 How clients heard about their local project

	Low social integration→High social integration				
	Borough	Midland	Northern	Tees	Lothian
	%	%	%	%	%
Local media	44	21	45	41	3
Local agency	12	24	9	2	2
Direct canvass	12	3	3	22	71
Social network	21	51	43	34	24

6.12 It can be seen that the two projects making greatest use of social networks, MIDLANDS and NORTHERN, are not operating in the most integrated areas. This is contrary to expectation but can be explained on the basis of an important characteristic determining project effectiveness. Both the MIDLAND and NORTHERN projects had been established for a comparatively long time, had developed some standing in the area, and were thus able to rely on the recommendations of satisfied clients and their acquaintances for new referrals. In addition, LOTHIAN, operating in the most integrated area, only relied on direct canvassing as a result of a misunderstanding about the legitimate promotional activities for projects funded under the Community Programme.

6.13 These findings suggest that the use of social networks for client referrals evolves with the development of a scheme.

General awareness of the projects

6.14 By definition all the clients are aware of the project's existence. To assess the extent of familiarity of the project in the locality, the comparison households were asked whether they had heard of it. Although the projects are small in scale, with limited resources and some had been active for a year or less, 33% of the comparison group had heard of their local project. Of these, approximately half became aware as a result of the project's canvassing and promotional activities and the local media, and almost 40% through social networks, that is from friends, relatives and neighbours.

6.15 LOTHIAN was the most successful project in creating awareness with 61% of the comparison households in the locality saying they knew of its existence. NORTHERN and MIDLAND achieved around 45% and TEES and BOROUGH had little impact on the community at large with only about 5% of their comparison group being aware of the project's existence.

6.16 Comparisons between three groups (clients, comparison households 'aware' of the projects' existence and 'not aware' comparison households) underline the importance of social integration in determining project awareness. The 'not aware' group was found to be significantly less socially integrated than either the clients or the 'aware' households. This suggests that projects are reaching more socially integrated homes and illustrates the importance, on the one hand, of stimulating social networks for client referrals, but equally the importance of other channels, for example, local media, direct canvassing, referrals from statutory and other agencies, in order to reach the more socially isolated households who are eligible for assistance.

6.17 Thus two factors appear to interact in determining whether awareness of a project disseminates through a community. First, the project's length of operation within that community — the longer a scheme has been operating, the more likely it is that eligible households will have heard of it. Secondly, the degree of social integration of households within the community — the more socially integrated the household, the more likely it is to hear about the project from others.

Reasons for non-participation

6.18 It is relevant to ask why the 33% of comparison households who were aware of their local project did not participate, contact the scheme and request their services.

6.19 The answer appears to be twofold. First, a large percentage of this group were adequately insulated and did not require the service. Eighty-four per cent had a hot water tank jacket, 70% had loft insulation and 64% had some draught proofing. Although many said they suffered from draughts (76%), a smaller number maintained it was a problem (38%) and the majority said they were satisfied with how warm they were able to keep (73%). Secondly, although aware of the project's existence, many households (57%) had no idea what service the project was offering. Thus even if they required its services it is unlikely that they would have made contact. An additional reason for non-participation is likely to be the lack of eligibility for the DHSS single payment for draught proofing. Only 24% of the 'aware' group was in receipt of supplementary benefit.

6.20 The finding that over half the 'aware' group were not knowledgeable about the scheme's services, suggests that social networks, although important in creating awareness of a project, may be limited in the nature and amount of information they disseminate. Other promotional strategies must be employed in parellel in order to achieve knowledge of programme services.

Conclusions

6.21 In the main, clients heard about the scheme as a result of the scheme's own publicity efforts and then took the initiative themselves in making contact. It appears that statutory bodies and other agencies do not play a significant role in bringing potential clients and the projects together. The service offered by the projects was attractive to clients on the one hand because of the subsidised insulation service and on the other because they expected to benefit in terms of a warmer and less draughty house with lower running costs. One third of NEA clients had considered insulating their homes in the past but did not do so because of the cost involved.

6.22 Both social networks in the locality and length of operation play an important role in determining general awareness of a project's existence. Thirty per cent of clients first heard about their local project through social networks and both clients and 'aware' comparison households were significantly more integrated in their community than unaware households. LOTHIAN, the project operating in the most integrated community was found to have created greatest awareness of its existence. But NORTHERN and MIDLAND, operating in areas of low community integration, had also achieved high levels of awareness. This can be attributed to their longer period of operation.

6.23 Social networks, while important for creating project awareness, are less successful in conveying information about the service being offered. It is concluded that other channels of information should be employed in parallel to achieve a knowledgeable, as well as an 'aware' target audience.

Chapter 7 Insulation services provided by the local projects including clients' assessments

Insulation work carried out by NEA projects

7.1 Table 7.1 gives a breakdown of the various categories of insulation work carried out in client households by the NEA projects together and individually.

7.2 There is some variation across the projects with regard to the combinations of insulation work carried out. BOROUGH provided only a draught proofing service. LOTHIAN concentrated on loft (89%) and hot water tank (57%) insulation. NORTHERN and TEES provided mainly draught proofing (about 95%) with some loft insulation (5 and 17% respectively). MIDLAND had done the greatest variety of work (loft 44%, draught proofing 91%, hot water tank insulation 31%).

In total the five projects taken together:

1 installed loft insulation into 52% of the households with an accessible uninsulated loft

2 fitted a hot water tank jacket in 44% of the households with an uninsulated hot water tank

3 fitted draught proofing in 93% of households. In 43% of households this work entailed replacing and/or adding to existing, but often inadequate, draught proofing. (See Table 7.2.)

Table 7.2: Draught proofing in client households

	%
Draught proofing pre NEA & by NEA	43
Draught proofing by NEA	50
Draught proofing pre NEA and not by NEA	4
No draught proofing	3

7.3 The finding that after NEA project teams had visited the client sample there were still households with an accessible uninsulated loft and 56% with an uninsulated hot water tank is cause for concern. Clearly a number of clients are not receiving a comprehensive service and we will comment on this later.

The level of insulation among clients relative to comparison households after intervention by NEA

7.4 Tables 7.3 and 7.4 show that following the work of the project the insulation in client households had risen from an initially lower level to surpass that of comparison households and to about the national averages level for loft insulation but not for hot water tank insulation.

Table 7.3: Insulation characteristics of households post NEA* intervention

	Matched samples Client	Matched samples Comparison	All Clients
	%	%	%
Loft insulation	93 (29)	71	81 (59)
Hot water tank insulation	87 (59)	75	77 (59)
Draught proofing	86 (47)	52	97 (47)

The figures in brackets give the percentages insulated prior to NEA intervention (see Table 5.1)

7.5 In Table 7.4 draught proofing is broken down into three categories, external doors, living room doors, and living room windows. On these three categories the matched clients had homes which were more thoroughly insulated than those of the comparison group.

Payment for insulation

7.6 With the clients' consent, financial information was made available to us by the projects from their records. This included details of total cost of the work carried out, receipt of Home Insulation Grants (HIG) and DHSS single payments, other financial assistance and the clients' own contributions to the cost of the work. Although there are some gaps, we were able to obtain data for 85% of households who had their loft insulated by the projects (see Table 7.5) and 83% of households who had draught proofing installed (see Table 7.6).

Table 7.1: Insulation work carried out by NEA projects in client households

	All Schemes	NORTHERN	TEES	LOTHIAN	MIDLAND	BOROUGH
	%	%	%	%	%	%
Loft Insulation only	4	[1]	[3]	30	[7]	0
Draught proofing only	76	84	83	11	50	100
Hot water tank insulation only	0					
Loft and draught proofing 4	[4]	[3]	7	2	10	0
Loft and tank	4	0	[1]	45	3	0
Draught proofing and tank	8	11	0	0	[7]	0
Loft and draught proofing and tank	4	[1]	6	12	24	0

Table 7.4 Draught proofing of doors and windows

	Mean no. of doors or windows with draught proofing per household	% of all doors or windows with draught proofing
(a) *All clients*		
External doors	1.5	82
Living room doors	1.3	77
Living room windows	0.9	67
(b) *Matched clients*		
External doors	1.5	76
Living room doors	0.9	57
Living room windows	0.7	52
(c) *Comparison households*		
External doors	0.7	34
Living room doors	0.2	14
Living room windows	0.1	12

Table 7.5 Loft Insulation: Cost and Grants

	Mean £	S.D.	% of Clients (n=124)
Average cost of loft insulation	78	24	
Average HIG 66%	58	15	34
Average HIG 90%	69	19	63
Average amount of other financial assistance £s	7	0.7	2
Average amount paid by client	15	15	98

7.7 The mean cost of loft insulation for those households who obtained a 66% HIG was £78. Only one of these received any other financial assistance (£8) and the remainder contributed on average £26 towards the cost of the work.

7.8 The average cost for the households who obtained a 90% HIG was £77. For those making a contribution to the work the average was £7, only one person received other financial assistance.

7.9 When the clients were asked about the financial details of the work many were uncertain. Seventy-six per cent said they had received a grant, 12% said they had not and 12% that they did not know. Of those who said they had received a grant, 46% did not know what level it was and 34% gave an estimate.

7.10 Although a sizeable proportion of those receiving a grant (32%) said they had applied for it themselves, a majority said the project had applied (51%) or helped with the application (17%).

7.11 The average cost of draught proofing for those clients who received a DHSS single payment was £25 and the average single payment was £25. The average cost of draught proofing for the households who did not receive a single payment (55%) was £13. Of these (83%) received financial assistance from other sources (average amount £13) and 13% of households paid an average of £13 towards the cost of the work.

7.12 The reason for the difference in cost between those receiving a single payment and those who did not was the amount of work carried out. Recipients of single payments had an average of five windows and four doors draught proofed whereas non-recipients only had an average of two windows and three doors draught proofed.

Table 7.6 Draught Proofing: Cost and Single Payments

	Mean £	S.D.	% of Clients (n=241)
Average cost of DP £s	19	11	
Average amount of single payment	25	11	45
Average amount of other financial assistance	13	7	46
Average amount paid by client towards the cost of work	13	9	7
Average number of windows DP per household	4	3	69
Average number of doors DP per household	4	1	100

7.13 When clients were asked about the financial arrangements for the draught proofing, again they were often uncertain about the details. Sixty-nine per cent of households either said they had not been awarded a DHSS single payment or did not know. Of those who said they had received a single payment, only 65% were able to report a figure.

7.14 Again, for the large majority of those who reported receiving a payment, it was the project who had applied to the DHSS (69%) or had helped the client to do so (10%). Only a small number of clients (21%) had dealt with the application by themselves.

Clients' contributions — ease of payment

7.15 Over half (55%) of NEA clients said they had contributed some money (average contribution £10) towards the cost of the insulation work conducted in their homes.

7.16 When asked whether it had been easy or difficult to find this money, the majority said that it had either been very easy (26%) or fairly easy (49%). A sizeable minority (21%) did say that it had been rather difficult but only a very small proportion (4%) maintained that they had found it *very* difficult to find the money.

7.17 The discrepancies between the financial data provided by clients and that obtained from the projects' records and the general uncertainty among clients about grants received, level of payment, etc., may in part, be symptomatic of the lack of this type of information being provided by the projects. When the clients were asked what financial statement they had been given on completion of the work, 78% of the households said they had received no statement at all. Four per cent had been given details of the total cost of the work. Five per cent had been given details concerning their own contribution to the cost and only 3% said they had been provided with a statement giving both total cost and their own contribution. The remaining 10% either said they did not know whether they received a statement or could not remember.

Client's satisfaction with the NEA service and its effect on comfort

7.18 Clients were asked about the service they recieved from the project and overall the results point to an efficient service with a good standard of work. The insulating teams in general arrived when they said they would. Over 90% of clients thought the work created little or no inconvenience and a similar figure described the standard of work as good or satisfactory. However, 26% of all clients subsequently experienced problems with the work. Of problems encountered, 62% involved loose draught stripping and 13% involved difficulties in opening and closing doors.

7.19 Despite these minor problems, the results indicate that the clients were more than happy with the service they obtained. Seventy per cent said they were 'very satisfied', 27% 'fairly satisfied' and only 3% expressed dissatisfaction. In addition, when asked whether they felt that the work carried out was 'good value for money', 91% agreed that it was and 47% had recommended other people to contact NEA for similar services.

7.20 Table 7.7 (a) and (c) show that the work carried out clearly had a beneficial effect. Clients now felt much warmer and their homes were less draughty. We consider the impact of the work on the amount of money they were paying for fuel in more detail in chapter 8, but the general impression here was that there had been a negligible effect on fuel expenditure (see Table 7.7(b)).

7.21 It is interesting to note that when asked the same questions, comparison households who had some insulation were more likely than clients to say that it had made no difference to the warmth and draughts in their homes. This perhaps points to the superior quality of work conducted by the NEA projects.

Table 7.7 How the work affected client warmth, fuel costs and household draughts

	Matched Samples		All clients
	Client	Comparison	
(a) *Warmth*	%	%	%
A lot warmer	43	33	54
A little warmer	45	33	35
No different	10	32	10
Don't know/can't tell	2	2	1
(b) *Spending on fuel*			
Spend more	11	22	11
Spend less	14	8	13
Spend the same	63	59	61
Don't know/can't tell	12	11	15
(c) *Draughts*			
House much less draughty	55	18	63
House a little less draughty	33	37	29
No difference	11	44	8
Don't know/can't tell	1	1	1

7.22 When comparing the effects of the various combinations of work carried out, the only general difference was the predictable effect of draught proofing. More clients who had draught proofing installed as one part of the work done said their homes were 'much less draughty' whereas those who did not, said there was either 'no difference' or that it was only 'a little draughty'.

Energy advice

7.23 We had intended to discover whether contact with an NEA project had any effect on clients' energy related activities. Specifically, if projects had been giving advice to clients on how to reduce their fuel bills, we could expect to see an increase in the number of energy saving measures being reported. In the event, 91% of the clients claimed to have received *no* advice from the project. The absence of a systematic attempt to inform clients about energy use and welfare benefits is a weakness in the service on which we make recommendations.

Conclusions

7.24 Draught proofing is the major service offered by the NEA projects we studied with the exception of LOTHIAN where loft insulation is the main focus. In almost one half of the homes NEA was adding to and improving the existing draught proofing. This confirms the clients' description of their draught proofing as inadequate prior to NEA intervention.

7.25 As a result of NEA work, the clients are above the national average for loft insulation, but surprisingly still below the national average for such a simple and cost effective measure as hot water tank lagging. The matched clients, who were much more poorly insulated than the comparison group prior to NEA intervention, have now overtaken the insulation standards of the comparison group by a considerable percentage.

7.26 Not only are a greater percentage of client households equipped with draught proofing but the extent of such draught proofing is also greater than that of comparison households. The average cost of loft insulation was £78. Thirty four per cent of clients received a 66% HIG amounting to £69. The average contribution made by the clients was £15. For draught proofing the average cost was £19, but for those receiving a DHSS single payment, the cost was £26 in comparison to £13 for non-recipients. The DHSS single payment clearly leads to more extensive works — 5 windows and 4 doors on average in comparison to 2 windows and 3 doors for non-recipients.

7.27 While 75% of clients were able to find the money for their contribution to the work without difficulty, the remaining 25% had experienced difficulty. In terms of quality of service, standard of work and value for money, the NEA intervention was considered more than satisfactory for clients. However, it should be noted that one in four jobs gave problems afterwards. On criteria of warmth, fuel costs and draughts the NEA work had an appreciable impact on the clients whose homes were now described as being warmer and less draughty. It is probable that the benefits of increased insulation were taken up more in comfort levels than fuel use since only a small percentage of clients said they were spending less on fuel following the NEA work.

Chapter 8 The effect of insulation measures on consumption of energy

8.1 How insulation measures affect the consumption of energy of low income consumers is less easy to predict than for the average consumer. As we have seen government conservation policy is directed mainly at reducing fuel consumption and using energy more efficiently. It has mostly focused on those who already heat their homes to at least a comfortable temperature. For these households the expected result of insulation measures is reduced consumption, but low income households may take the benefit of insulation in increased comfort or reduced consumption or a combination of the two.

8.2 The survey of NEA clients and the comparison sample provides and opportunity to study the effect of insulation measures on the energy consumption of low incomes consumers. In this section we present the analysis of the consumption data collected to cover a corresponding period before and after the insulation work done by NEA. We have already seen that most clients noted no change in expenditure but felt warmer and more comfortable after the NEA work. The analysis of changes in consumption will provide a complement to these findings and give a more objective measure of whether insulation has reduced consumption or increased comfort.

The data

8.3 At the time of the interview both client and comparison sample were asked to complete a form authorising the gas and electricity boards to give details of their consumption figures. In general the fuel boards responded quickly and were helpful in explaining the figures provided. Consumption data were supplied by the boards for eighteen months prior to the period of the interview so that data would be available on consumption before and after NEA work for most cases.

8.4 The date NEA did the insulation work in the household was taken from the projects' records with the consent of the client. The consumption data for both gas and electricity for the first two complete quarters after the NEA work was compared with the consumption of the corresponding quarters the previous year. The same four quarters' consumption data was compared for the corresponding comparison households. The initial intention was to calculate the difference between average consumption of the two quarters after NEA and the average of the same two quarters the previous year, but there were a considerable number of cases where a complete set of the relevant four quarters' data was not available. This was due to estimated readings and, because of the spread in the date the work was done, sometimes the consumption data did not go back far enough. Similarly, for more recent work there were not two complete quarters after the work. Thus for some households, the comparison is restricted to one quarter following the work and the same quarter the previous year. The distribution of the dates the work was done means that very few quarterly readings for the summer months were included so that the data can be considered to relate to the heating season only.

8.5 One of the main problems in analysing consumption data is the attrition of the sample through non-availability of data. Consumption data was only available for those who consented; for some households the date of the work was not available from the schemes' records. These reasons reduced the sample of clients with matching comparison households to 92 clients and 86 comparison households with information on electricity and 79 clients and 90 comparison households with consumption data for gas. These numbers are sufficient to analyse and the main reasons for data not being available seem unlikely to lead to bias. Estimated readings were used unless they resulted in outlying values for the differences in before and after consumption. They formed 14% of the readings used for comparison for electricity and 19% for gas.

Results

8.6 The average differences between consumption in the two quarters after NEA and the same two quarters the previous year are shown in Table 8.1. Because of the difficulty in gathering consumption data on solid fuel, those using only electricity and gas are mentioned separately, these being the only households where complete energy use information before and after is available. Almost two-thirds of the sample use this fuel combination so there was an adequate sample for analysis.

8.7 The changes in consumption for gas are quite different from those for electricity. For most groups, gas consumption increased over the year (although the overall figure for clients shows a slight reduction) but clients' consumption increased less than that for the comparison sample. This is true for all categories of consumer, whether the mean or the median is used for comparison. The proportion of households in the client sample whose consumption of gas had decreased over the year in which the insulation work took place is significantly greater than that for the comparison sample for the same period. Thus it is possible to say with some confidence that the gas consumption of the clients was more likely to reduce than that of the comparison sample. However the more stringent requirement that there is a significant difference in the mean changes of the client and comparison sample is not met. The effect of insulation is less clear with electricity; for most groups, apart from those using the fuel combination electricity and gas only, the electricity consumption of the comparison households has decreased more than that of the clients. The association between electricity consumption and insulation might not be expected to be so clear as electricity is seldom the main space heating fuel even in these low-income households. (Numbers were too small to study those with electric central heating separately.) Why the comparison sample should have reduced their consumption of electricity more than the clients is difficult to interpret; both samples are equally likely to have brought additional space heating equipment and the clients are more likely to have changed to a cheaper fuel in an effort to reduce expenditure or keep warmer.

8.8 During the most appropriate time period (the financial year 1982–83) there was a national reduction in both gas and electricity consumption. Our findings of an increase in gas consumption probably reflect the peculiar characteristics of our sample—poor and elderly and still likely to be catching up in comfort levels.

Table 8.1 **Difference between consumption in the two quarters after NEA compared with consumption in the same two quarters the previous year.**

	Mean	Median	N	Proportion with decreased consumption
GAS (therms)[1]				
All clients	–0.1	+2.0	109	0.38**
Comparison sample of above	+6.4	+8.0	118	0.28
Clients using electricity and gas only	+2.1	+2.0	82	0.39**
Comparison sample of above	+9.1	+12.5	80	0.28
Clients having had loft insulation	+0.7	+4.0	47	0.34*
Comparison sample of above	+3.6	+10.0	49	0.24
Clients using electricity and gas only and having had loft insulation	+7.2	+7.0	28	0.39*
Comparison sample of above	+14.2	+20.5	30	0.27
Clients having had draughtstripping	–0.7	+0.3	62	0.42**
Comparison sample of above	+6.3	+6.0	59	0.31
Clients using electricity and gas only and having had draughtstripping	–0.6	+1.0	54	0.39
Comparison sample of above	+5.3	+6.7	49	0.32
ELECTRICITY (units)				
All clients	–13.2*	+2.0	138	0.48
Comparison sample of above	–16.6	–2.0	127	0.50
Households using electricity and gas only	–10.0	+2.0	93	0.48
Comparison sample of above	–15.3	+7.0	80	0.45
Clients having had loft insulation	–1.92	0.0	61	0.48**
Comparison sample of above	–1.4	–11.0	57	0.60
Clients using electricity and gas only and having had loft insulation	–5.92	–14.0	37	0.54
Comparison sample of above	+5.1	–1.0	41	0.51
Clients having had draughtstripping	–22.2	+7.0	77	0.48
Comparison sample of above	–29.7	–12.5	68	0.53
Clients using electricity and gas only and having had draughtstripping	–12.6	+8.5	56	0.45
Comparison sample of above	–38.3	–27.0	37	0.54

* Differences in proportons significant at 10%

** Differences in proportions significant at 5%

8.9 When the changes in consumption for gas and electricity (from Table 8.1) are combined and expressed in terms of giga joules (see Table 8.2), the picture remains much the same as that for gas with energy consumption increasing less for the clients than the comparison samples. This is partly to be expected because a therm is a much greater proportion of a giga joule (1/10) than a unit of electricity (1/278). This consistent picture of lower consumption of energy by the clients of NEA than similar comparison households suggests that the insulation measures installed by NEA do have the effect of reducing consumption of energy even in low income households.

8.10 We have already reported that the impact of insulation measures is significant on the basis of a test of proportions of the population with reduced consumption of gas (the main component in a unit of energy measured in giga joules). Obtaining estimates of the actual amount saved is subject to wide margins of error but the differences in means and medians provides the only point estimate available to us. We therefore use the mean in estimating the reduction in consumption as a result of the NEA insulation measures.

Table 8.2 **Consumption changes in giga joules**

	Mean	Median
All clients	–0.06	+0.22
Comparison sample of above	+0.61	+0.20
Clients using electricity and gas only	+0.18	+0.22
Comparison sample of above	+0.86	+1.25
Clients having had loft insulation	+0.06	+0.42
Comparison sample of above	+0.35	+1.0
Clients using electricity and gas only and having had loft insulation	+0.75	+0.69
Comparison sample of above	+1.44	+2.05
Clients having had draught stripping	–0.15	–0.06
Comparison sample of above	+0.52	+0.56
Clients using electricity and gas only and having had draughtstripping	–0.11	–0.13
Comparison sample of above	+0.39	+0.57

8.11 Table 8.3 compares the change in consumption of the clients and the comparison sample relative to their consumption before insulation. Relative reductions in consumption are between 2 and 5% for the client sample. The Watt Committee(1) gives expected savings on retrofitted insulation measures to dwellings of 8 to 9% for loft insulation and 12% for simple draught proofing. The comparison of these figures would therefore suggest that the NEA clients are taking some of the benefit in increased comfort and confirms the responses reported in chapter 7 where clients said that their homes were warmer and more comfortable as a result of the work done by the NEA projects.

Table 8.3 Change in energy consumption relative to comparison sample

	Proportionate change	Relative difference
All clients	−0.01	5%
Comparison sample of above	+0.04	
Clients using electricity & gas only	+0.02	4%
Comparison sample of above	+0.06	
Clients having had loft insulation	0.00	2%
Comparison sample of above	+0.02	
Clients using electricity and gas only having had loft insulation	+0.06	4%
Comparison sample of above	+0.10	
Clients having had draughtstripping	−0.01	5%
Comparison sample of above	+0.04	
Clients using electricity and gas only and having had draughtstripping	−0.01	4%
Comparison sample of above	+0.03	

Estimates of pay back periods and saving achieved by NEA

8.12 From the figures in Table 8.3 of percentage savings, it is possible to estimate a very crude pay-back period for the amount paid by the clients and total cost (excluding labour costs) of the insulation. Table 7.5 gives a cost to clients of £15 (£16 in 1984, assuming a 5% rate of inflation) and a total cost excluding labour of £78 (£82) for loft insulation. For draughtstripping, Table 7.6 gives a cost of £13 (£14) to the clients and of £19 (£20) for the total cost excluding labour. The percentage saving for loft insulation was 2% and for draughtstripping, 5%.

8.13 Average fuel expenditure for these households in 1984 based on £8.60 in 1983 is £9.03 (assuming fuel price rises of 5% in the year). A saving of 2% in consumption for loft insulation gives a cash saving of 18 pence per week during the heating season or 14 pence per week over the year. A similar calculation on a percentage saving of 5% gives a figure of 34 pence per week for draughtstripping yielding annual savings of £7.04 and £17.60 respectively. Simple division gives a pay-back period as follows:

the clients' outlay for loft insulation is paid back in	2.2 years
total cost of loft insulation (excluding labour) is paid back in	11.6 years
the clients' outlay for draught proofing is paid back in	9 months
total cost of draught proofing (excluding labour) is paid back in	1.1 years

Cost-benefit analysis

8.14 It is also possible to do a crude analysis of the costs and benefits to society of the NEA projects. It should be noted that what is estimated is not the overall return on the project but total private savings against total public expenditure — the calculation required to measure the value of the public expenditure on NEA. Based on a telephone survey of half the projects known to NEA in October 1984, the average number of jobs done in six months to 30 June 1983 was 600 per project. There are now 93 projects, 80 of which do insulation work. Thus the total number of jobs done per year is 48,000. Using the information (Table 7.1) that 16% of clients had loft insulation done, gives 7,680 loft insulation jobs done by the projects. The number of households having only draught proofing is 40,320 (84 per cent). Thus we can calculate the overall benefit in reduced fuel expenditure. Increased comfort is a benefit which should also be included in this analysis. For loft insulation the difference between the actual reduced consumption and that estimated by the Watt Committee is 8 − 2 = 6% which can be considered to be taken in comfort. This works out at 54 pence per week or £28.17 annually. Similiar figures for draught-stripping are 12 − 4 = 8% or 72 pence per weeek, an annual benefit of £37.56. The benefits are thus calculated:

	£
£7.04 pa for 7,680 lofts insulated in reduced fuel consumption	54,067
£28.17 pa for 7,680 lofts insulation in increased comfort	216,346
£17.60 pa for 40,320 homes draughtstripped: in reduced fuel consumption	709,632
£37.56 pa for 40,320 homes draughtstripped: in increased comfort	1,514,419

In addition to these, there are a variety of other possible benefits such as improvements in health which we have not taken into account.

8.15 The costs are as follows:

	£
(a) Materials	
1 Loft insulation (from Table 7.5)	
34% received 66% HIG of £61*	159,283
63% received 90% HIG of £72	348,365
2% received other financial assistance of £7	1,075
98% contribute £6	120,422
Total	629,145
2 Draughtstripping (from Table 7.6)*	
45% received single payments of £26	471,744
46% received other help of £14	259,661
7% paid £14	39,514
Total	770,919

* All figures from chapter 7 have been increased by an inflation factor of 5%.

8.16 The net exchequer cost of a Community Programme place is given as £1,700 by the MSC. There are 1,250 Community Programme places in 93 local NEA projects, thus in the 80 projects doing insulation work, we can assume there are 1,075. Contributions from the Urban Aid programme, sponsoring organisations and charities for labour costs amounted to £44,000 in September 1982 for 28 projects doing insulation work. Allowing for inflation and the greater number of projects in 1984/5, this becomes £132,000. Thus labour costs are:

(b) Labour	£
1,075 Community Programme places at £1,700	1,827,957
Urban Aid, etc. contributions	132,000
Department of Energy contributions to labour and administration	250,000
Total	2,209,957

8.17 In the following cost benefit analysis table, the discount rate for calculating present value is assumed to be 5%. As can be seen from this, the cost of manpower and materials in the NEA scheme is paid back in reduced fuel costs and increased comfort within two years. Even if the more stringent assumption of the discount rate of 7% is used this is still the case. As both loft insulation and draughtstripping have paid for themselves will within any expected effective lifetime, then the future benefits beyond the two year pay-back period would simply increase the present value.

Table 8.4 Cost Benefit Table A

	1984 £	1985 £
Benefits		
Fuel savings	763,699	763,699
Increased comfort	1,730,756	1,730,765
Costs		
Manpower	2,209,957	0
Materials	1,400,064	0
Current net benefit	−1,115,557	+2,494,464
Present value	−1,115,557	+2,375,678
		−1,115,557
Overall benefit		+1,261,121

Sensitivity analysis

8.18 In the above table we have assumed that the benefits are as stated in the Watt Committee report for existing dwellings. The sample we are concerned with may be rather different from a general sample of existing dwellings. Elderly households generally live in smaller homes which are more likely to be in poorer repair. Also the draughtstripping measures may not be so comprehensive as those used to obtain the Watt Committee results. Thus to assume an expected saving in consumption of 8% for loft insualtion and 12% for draughtstripping may be over-optimistic. Instead, let us assume a saving of 4% for loft insulation and 6% for draughtstripping. To be even more stringent we assume that no actual fuel savings are obtained and that the benefit is entirely taken in increased comfort (cost benefit table B). A saving of 4% on loft insulation (whether taken as savings in increased comfort) is 36 pence per week or £18.78, amounting to £144,230 for 7,680 lofts. Similarly a 6% saving for draughtstripping is 54 pence per week or £28.17 annually, giving £1,135,814 for 40,320 homes draughtstripped.

Table 8.5 Cost Benefit Table B

Assuming a discount rate of 5%.

	1984 £	1985 £	1986 £	1987 £
Benefits				
Fuel savings	0	0	0	
Increased comfort	1,280,044	1,280,044	1,280,044	
Costs				
Manpower	2,209,975	0	0	
Materials	1,400,064	0	0	
Current net benefit	−2,329,977	+1,280,044	+1,280,044	
Present value	−2,329,977	+1,219,088	+1,161,038	
		−2,329,977	−1,110,899	
Overall benefit		−1,110,899	+50,149	
Assuming a discount rate of 7%:				
Present value	−2,329,977	+1,196,304	1,118,042	1,044,900
		−2,329,977	−1,133,673	−15,631
		−1,133,673	−15,631	+1,029,269

8.19 The pay-back period is extended by one year when the savings for loft insulation and draughtstripping on existing dwellings are halved from the estimates given by Watt Committee. Again the assumption of a more stringent discount rate extends the pay-back period by a further year.

Conclusion

8.20 The analysis of the consumption data for the clients of NEA and the corresponding comparison sample have been presented in this section. The results suggest that the insulation measures installed by NEA have enabled the clients of NEA to reduce their consumption of energy relative to the comparison sample by about 5%. The reduction is not as great as it might be expected if all the benefit of insulation had been taken in reduced consumption. This suggests that some has been taken in increased comfort which confirms the subjective responses the clients of NEA made saying that expenditure had not in general been reduced but they felt warmer and more comfortable. Payback periods of around 9 months for draughtstripping and two years for loft insulation for the clients were estimated. The total cost of the work excluding labour charges was estimated to be paid back in approximately a year for draught proofing and in around twelve years for loft insulation. A simple cost benefit analysis showed that within two years there was a net benefit to society on fuel savings and increased comfort after accounting for the cost of the manpower and materials used by NEA, assuming a discount rate of 5%. The pay-back period was extended by a year when more pessimistic assumptions were made about the benefits to be gained from draughtstripping and putting loft insulation in existing homes and in this case, the assumption of a discount rate of 7% extends the pay-back period a further year.

References

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3. Watt Committee, A warmer home at lower cost, 1979

Chapter 9 Summary and conclusion

Summary of main findings

9.1 In this chapter the main findings of the study are summarised. We also discuss the future of NEA and make recommendations for changes in its institutional support and funding. Finally we consider the NEA programme in the context of a national energy efficiency policy and discuss various options for ensuring that the energy efficiency needs of disadvantaged consumers are met.

9.2 This research has shown that the local energy conservation projects registered with NEA are playing a unique part in the government's general energy efficiency programme. The NEA projects reach households which can be considered to be in fuel poverty. Their homes are poorly insulated, cold and draughty and costly to heat and NEA clients spend a relatively high proportion of their income on fuel. The service provided by the NEA projects, mainly draught proofing windows and doors and to a lesser extent insulating lofts, results in greater comfort levels (a welfare benefit) and to reductions in their use of fuel (an energy saving benefit).

9.3 While some of the benefits of insulation are taken up in increased comfort levels, the insulation is still cost effective when judged on the criterion of pay-back period. In terms of the clients' own contribution, the pay-back period for draughtstripping is estimated as about nine months and about a year for total cost excluding labour charges. For loft insulation the figures are two years and 12 years respectively.

9.4 We find that the NEA projects are meeting a need that would not be alleviated by other means. The NEA projects cater for those who 'have falled through the net' of existing national insulation programmes and underline the need for a low cost service provided at a local level in order to reach such consumers. As a result of the NEA work, we find that clients have overtaken matched consumers in terms of level of loft and hot water tank insulation and draught proofing. We find no evidence of the 'free rider' effect. The essential insulation work would not be done without NEA's intervention. It is only through the provision of no-cost labour that the clients are able to accept the service offered. In terms of quality of service, standard of work and value for money, the NEA projects are judged to be more than satisfactory by their clients.

9.5 In summary, therefore, NEA projects meet a very real need, provide a good quality service to clients and satisfy their requirements for warmth and lower fuel bills. In so doing, NEA contributes to the nation's broader goal of cost effective improvements in the efficiency with which energy is used.

The future of NEA

9.6 Although there are many precedents in other government departments, we believe this is the first example of collaboration between the Department of Energy and the voluntary sector. On balance it has been a notable success for both parties. The use of seedcorn funding to encourage schemes to become established has been both innovative and successful.

9.7 With the expenditure of only modest sums the Department of Energy has been able to test the potential of local energy conservation schemes. This support enabled a number of new projects to become established. In becoming established and carrying on their work these projects have also benefited from and valued the support of the central NEA — also partly funded by the Department of Energy. Once established, projects have survived without further financial support from the Department of Energy, relying on an extraordinarily diverse source of funds.

9.8 The programme has shown some potential. There are now about 93 schemes operating of which 83 do insulation work. They are employing about 1,250 people who might otherwise have been unemployed. During 1984/85 insulation work will be carried out in about 48,000 households and about £510,000 in the form of home insulation grants and £470,000 in single payments from DHSS will be released for the benefit of these households. The projects also attracted local authority and other funding. The Government target is to have 200 projects operational by April 1986.

9.9 From a Department of Energy point of view, the added value to their modest investment [of about £250,000 in 1984/85[1]] must give a deep sense of satisfaction. However, as an energy conservation policy, rather than merely a limited experiment, the programme is far from secure. We have discussed some of the problems it faces in Chapter 3.

9.10 The institutional arrangements of the NEA scheme are complicated and problematic. The analysis of the agencies involved, directly or indirectly, with NEA and the local projects is evidence of the voluntary sector's ability to capitalize on diverse sources of funding and support. However there are some costs associated with such arrangements. At the central level NEA has only weak support in official circles; at the local level, energy-related objectives may be given low priority or lost altogether.

9.11 As a multi-issue organisation NEA draws support from various government departments but there is no single department which sees NEA as its particular responsibility. The 'official voice' of NEA is the Department of Energy but its 'banker' is the MSC. The goals of these two bodies are not necessarily compatible. Neither the DHSS nor the Department of the Environment take an active part in the scheme yet without their subsidies/grants to householders the scheme would not exist.

9.12 The imbalance in resources for local projects as between the Department of Energy and the MSC may have contributed to the growing number of projects with only a tentative commitment to energy conservation. Without more support from departments with energy/welfare objectives, this trend may grow. We believe that the Department of Environment, local authorities, the DHSS and the Fuel Boards should be brought into actively supporting the scheme.

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[1] The budget allocation is £450,000 but at December 1984 only £200,000 had been spent. The spending of the rest within the financial year depends on how many new projects start in January/February 1985. There is a possibility that 52 may start within the time scale.

9.13 At the central level, a senior coordinating group of all the relevant departments should be set up to formulate a comprehensive strategy for improving the insulation of low-income households. NEA would be one aspect of this strategy. Amongst other supporting roles, the coordinating group should find ways of providing projects with an official entree to the local offices of the DHSS, the fuel boards and the local authority departments dealing with housing and home insulation grants. Our evidence clearly shows that where such contracts exist, projects are better able to target eligible clients. In addition, the fuel boards might usefully be invited to assist schemes with management advice and in the training of workers.

Funding local energy projects

9.14 We are convinced that central NEA has too few resources. The success of NEA is a measure of the enthusiasm and commitment of its small staff, but without greater resources we doubt whether they would be able to oversee a nationwide scheme of projects, or provide the essential advisory/consultancy services which projects clearly need and value.

9.15 We have also concluded that local projects are underfunded. It is very difficult, particularly in rural areas, to make projects viable unless they have access to other resources either in the form of income and grants, or the provision of management services. The most successful projects are all underwritten by substantial grants from the Urban Programme or other sources. The underfunding of projects is felt most seriously in their management and some rural projects also find paying for petrol a major difficulty. The Community Programme does not make it easy for projects to recruit the right quality of management staff and sustain them in employment for long enough to provide continuity. The problems affect performance — projects are slow to get started and in some cases there is anxiety about the quality and quantity of insulation work being done.

9.16 To some extent these problems have been recognised and the central NEA teams have been strengthened and regional development staff appointed to promote, influence and inform the work of local projects. However, although greater flexibility has been introduced into the use of the project grants, it still remains at £5,000 — not sufficient in our view for projects to be viable and independent of other sources of funding.

9.17 Many of the problems of local energy conservation projects arise from the Community Programme and the grants system which they operate.

Community Programme

9.18 If one were designing a national network of local energy conservation schemes from scratch one would not adopt the criteria of the CP scheme: the average wages rule, the eligibility criteria, the part-time/full-time ratio, the requirement to turn staff over after a year and the fact that no allowance is made for training. These rules may be appropriate for a job creation programme but they are not suitable for the efficient operation of conservation projects. There are two solutions to these problems. Either the standard MSC rules could be adapted to meet the particular needs of conservation projects or resources for employing key staff and training should be provided by the Department of Energy independently of Community Programme funding.

9.19 A most serious problem with the Community Programme has arisen since the research was completed. Community Programme places are fully taken up in most areas of the country and new projects ready to start are held up waiting for places. Local boards have been urged to give priority to energy conservation projects and some unused places are being found in CP agencies which are being released for energy conservation projects. However, the whole programme is presently constrained by the 130,000 limit on CP places and that limit is determined by Treasury constraints on public expenditure. Each CP place costs £4,300 per annum. However it saves expenditure on benefits and the worker contributes direct and indirect taxes and national insurance contributions. After taking account of these factors, there remains a net exchequer cost of £1,700 per annum per filled CP place. However, the long term value off the work carried by those employed on energy conservation projects should also be taken into account in assessing the costs and benefits of the Community Programme. In chapter 9 we have estimated that the total public expenditure cost of NEA including the net exchequer cost of the Community Programme places is repaid in improvements in energy efficiency within two years on an optimistic basis and within four years on a pessimistic one.

Grants

9.20 The NEA projects have been particularly successful in exploiting the existing grants machinery to fund insulation work. Without their intervention, not only would many low-income households not have had draught proofing and loft insulation carried out but also they would not have benefited from the Homes Insulation Schemes and supplementary benefit single payments However, the rules of these schemes are certainly hampering th development of the programme.

(a) The Homes Insulation Grant scheme

9.21 The 66% and 90% limits mean that in some cases either some households unable to find the balance of the cost of the work are not undertaking it, or projects are underwriting the true cost of the work which is a further threat to their financial viability. It appears to be most difficult to cover these costs in projects in rural areas, in Victorian and Georgian inner city areas and Northern Ireland (where costs are higher). Families with dependent children on low incomes are most likely to be unable to find the balance of a 60% grant. The 90% grant should now be extended to every household receiving housing benefit.

(b) DHSS single payments

9.22 Apart from problems in some areas coming to an agreement with the local social security office on methods of payment, these grants work well for those entitled to them. Probably the major difficulty with the delivery of draughtstripping is that grants are only available to households on supplementary benefit. Many old people have income or capital which is often only marginally higher but which excludes them from entitlement and they do not want to or feel they cannot undertake the expense. In some cases the cost of draughtstripping is being underwritten by local authority or Urban Aid funding.

9.23 For both loft insulation and draughtstripping there is often a problem where repairs are needed to roofs, windows or doors in order to make the insulation effective. The cost of this work may have to be carried by the consumers or the projects. Northern Ireland has an interesting model which provides a solution to this problem: the Housing Executive has a Small Repairs Grant Scheme and work costing up to £125 can be carried out in dwellings of any tenure by the local projects and reclaimed from the NIHE. If local conservation projects could draw on a fund in a similar way, then some of the problems of the grant schemes could be mitigated. Single payments are available for people on supplementary benefit to cover essential repairs provided the cost is not greater than £325 but few projects make use of these payments.

9.24 Another problem is that only in very limited circumstances and only if households are receiving supplementary benefit can help be given to install more efficient heating systems. Yet the energy efficiency benefits which could be derived from changing a heating system are often more substantial than any insulation work.

9.25 All this suggests the need to restructure the existing grant systems to make an Energy Efficiency Grant available to a wider range of categories of household than just those on supplementary benefit — perhaps all those in receipt of housing benefit — and used for any cost effective conservation measures including insulating lofts, floors, hot water tanks, pipes and even walls as well as draughtstripping, simple double glazing, the installation of controls for heating systems, the replacement of inefficient appliances and the provision of advice. Better targeting of insulation measures need not result in another means test — use of NEA could be an appropriate targeting device.

9.26 These ideas might help to deal with two concerns which arose from the consumer survey about the scope of the service being offered by the projects to clients. First, we think that it is a lost opportunity that the projects leave some clients without a full insulation service. While their major emphasis on draught proofing is supported by this research in terms of client satisfaction and energy savings, we consider that as a matter of routine the projects should ensure that hot water tanks are always properly insulated. Of course the projects operate under many constraints — what they are organised to do effectively, what clients can get in terms of grants and the viability of the projects themselves — but having identified a client, a time-consuming process, it would surely be more cost-effective to carry out a comprehensive insulation service than to stop at draught proofing of windows and doors.

9.27 Secondly, there was little evidence that clients were receiving advice from the NEA teams on fuel or on other matters relating to the efficient use of energy. Certainly projects aspire to give advice but within the constraints of the Community Programme and focussed as they are on specific tasks of draughtstripping and/or insulation, it is difficult to integrate advice. If the projects had access to a more flexible energy efficiency grant, then advice, even audits, might become an essential part of the service.

Energy efficiency services for disadvantaged consumers

9.28 Even if the problems of funding the schemes, the constraints of the Community Programme and the limitations of the grants could be overcome, it will take decades rather than years to improve the thermal efficiency of the dwellings of the majority of disadvantaged consumers through the auspices of NEA. It may be that the time has come to see NEA as an example of the pioneering work of the voluntary sector which now requires more formal development and constitutional arrangements. It was not the purpose of this research to assess the advantages and disadvantages of alternative long term policies to cater for the needs of disadvantaged consumers in our society. However, we briefly discuss four possible options below.

1 *Private sector*

9.29 The private sector could be stimulated to divert their services to low income households by developing the grants systems. It would be necessary to increase grants so that they covered labour costs for certain categories of household and thus enabled work to be carried out profitably. Selected contractors, including where they exist NEA schemes, could be licensed to carry out the work. The quality and quantity of the work done could be regulated by local authorities.

2 *Fuel boards*

9.30 In parts of the United States and Australia, the fuel boards are taking responsibility for retrofitting programmes. In Victoria, Australia, for example, the electricity and gas undertaking will retrofit free of charge homes containing a medical card holder which use more than a specified number of units per quarter. In the United States, many utilities offer energy audits and related services under the Residential Conservation Service. Special incentives are often provided for low-income families. In Eugene, Oregan the electricity company pays the entire cost of all recommended weatherization measures for those whose total income is not more than 125% of the federal poverty guideline. While particular overseas experiences may not be the most relevant models for the British situation, they are indicative of the type of contribution that the fuel boards could make given appropriate legislation.

9.31 Responsibility for domestic sector energy efficiency measures including house insulation could be taken over by the fuel industries if their legislative powers were changed from requiring them to generate and supply energy as efficiently as possible to ensuring that it was also used as efficiently as possible.

3 *Local authorities*

9.32 District Councils are already responsible for the homes insulation programme: they distribute loft insulation grants and until the end of earmarked funding were engaged in a considerable programme of retrofitting in their own housing stock. Apart from being responsible for their housing stock which is some of the worst insulated and contains some of the poorest tenants, local authorities also have the kind of skills and knowledge necessary to take on the private rented and owner occupied sector. However, providing them with general powers to carry out this work is not likely in the present constrained climate of local government finance to achieve very much. Earmarked funding as recommendned by the Advisory Council for Energy Conservation would be required.

9.33 Another approach would be to develop the concept of Energy Conservation Areas as recommended by the National Energy Efficiency Forum and now being implemented as a pilot scheme in Dudley.

4 *DHSS*

9.34 Although the need for energy conservation work for low income households extends beyond claimants of supplementary benefit, one person in eight in the UK is now dependent on SB and thus the DHSS is the only agency in touch with a large number of those in need. The DHSS are already prepared to make single payments for simple draught proofing — and the replacement of old and inefficient heating systems. They are also prepared to pay the extra interest and added insurance associated with an additional mortgage raised for improvement, repairs or adaptations (including insulation) to an owner occupier's house and, through housing benefit, the increase in rent following an improvement in the (insulation) standards of a private or council rented property.

9.35 Could DHSS policy develop one stage further — become more interventionist — to ensure that claimants are enabled to make better use of their heating expenditure?

9.36 Clearly such an extension of DHSS responsibilities would involve additional staff and expenditure and add an extra burden at a time when the supplementary benefit system is being reviewed in an attempt to diminish and simplify its operation. The DHSS would probably argue that a department responsible for social security cannot take on the job of insulating claimants' homes; that they have no expertise; that such a policy would discriminate against non-claimants whom they cannot help; that there is a traditional bar against improving the assets of owner occupiers and landlord through the social security system; and that other agencies have the responsibility. However, DHSS has the powers, has access to clients and is already heavily engaged in relieving fuel poverty. A new conservation programme for SB recipients could justfiy the DHSS in holding expenditure on additional heating requirements. A change in policy involving additional expenditure now may well save substantial and wasted expenditure later.

9.37 It is the Government's intention to move Britain from the bottom to the top of the European league table on energy efficiency during the lifetime of this parliament. Despite progress with conservation in the domestic sector there is still room for a major investment programme to cover uninsulated hot water tanks, lofts, walls and draught proofing. This remaining potential is concentrated in lower income households. Therefore the first priority must be to develop policies that reach out to these households. Some but not all benefits of this investment will be taken in improved heating standards. However, even if energy savings are not immediately very great, as these properties turn over they will accumulate. In the long run investment in a programme to save energy in low income households will have an impact on energy demand. In the long and short term it would also have substantial social benefits.

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